

THIRD SERIES VOL 64 NUMBER 10

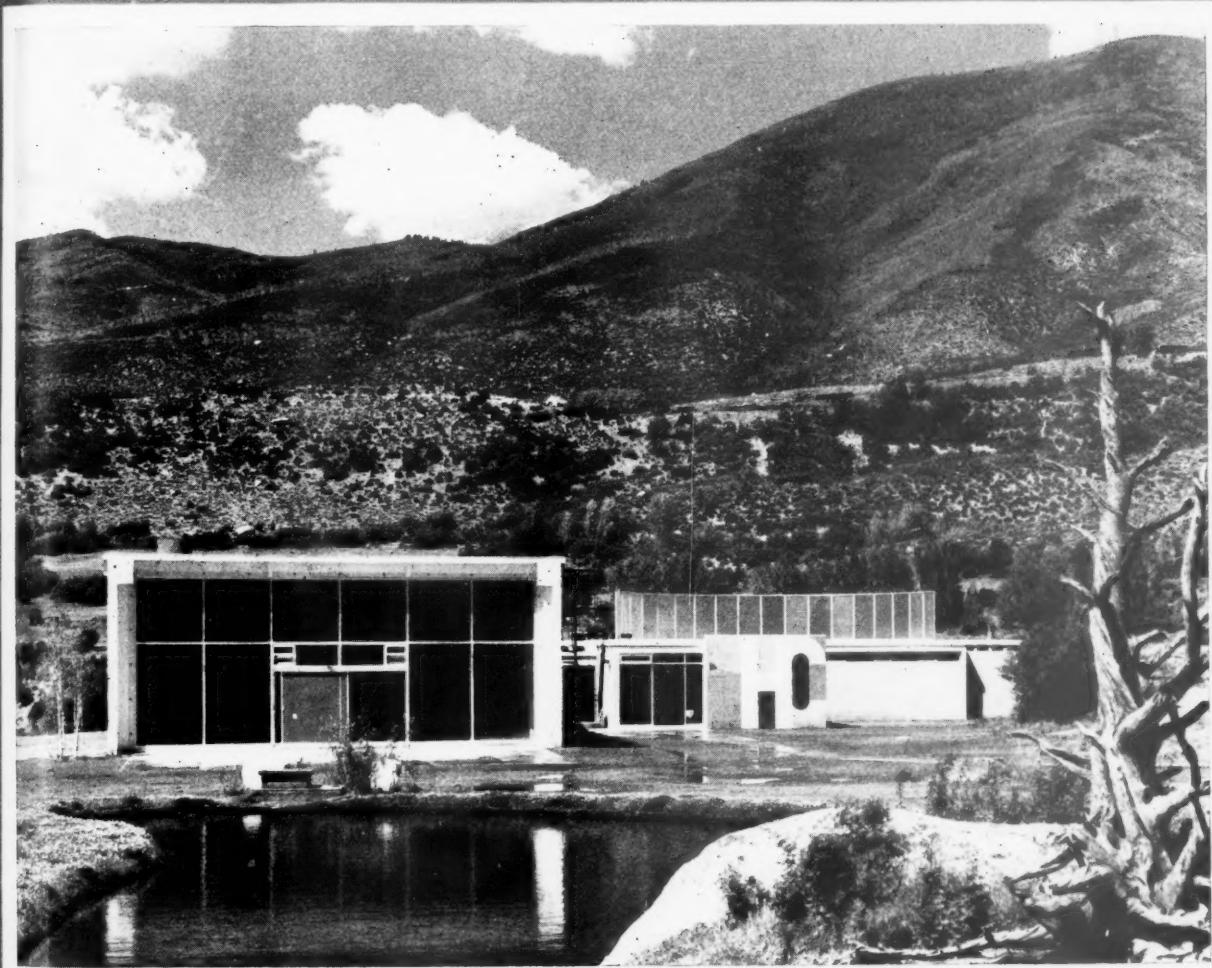
AUGUST 1957

Architecture Library

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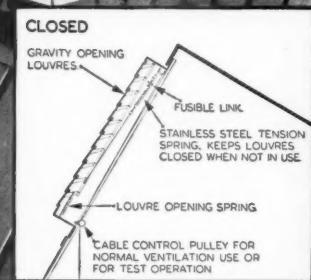
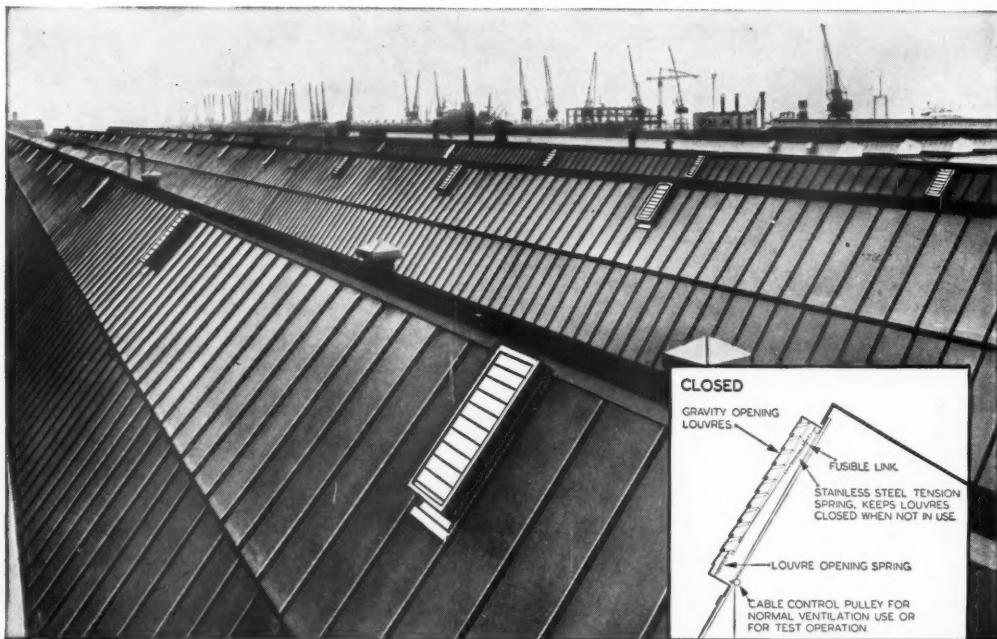
THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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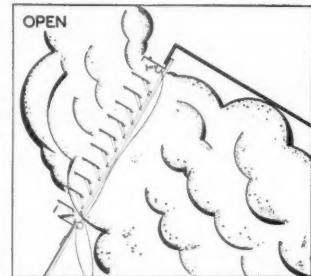
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AUGUST 1957 THIRD SERIES VOL. 64 NUMBER 10 TWO SHILLINGS AND SIXPENCE

EDITORIAL

Inaugural Meeting of the Civic Trust

A conference to launch the Civic Trust was held at Lambeth Palace on 20 July. Delegates from professional bodies, Civic Societies and branches of the C.P.R.E. were welcomed by the Archbishop of Canterbury [Hon. F], one of the Trustees.

The Conference was divided into four sessions to discuss: (i) The Objects of the Civic Trust; (ii) Civic Design; (iii) The Preservation of Natural Amenities and Buildings of Artistic Importance, and (iv) Unsightly Development.

The first session was opened by Mr. Duncan Sandys, M.P., President of the Trust, who was followed by the President, R.I.B.A., who welcomed the formation of the Trust on behalf of the Professional Institutions. Lord Mottistone [F] spoke similarly for the Civic Societies, Sir Herbert Griffin [Hon. A] on behalf of the C.P.R.E., Sir Frederic Osborn representing the Town and Country Planning Association, and Alderman Hill for the Association of Municipal Corporations.

The session on Civic Design was opened by Mr. Frederick Gibberd, C.B.E. [F], and that on Preservation by Professor Basil Spence, O.B.E., A.R.A., A.R.S.A. [F], the final session on 'Eyesores' was opened by Mr. R. Furneaux Jordan [F].

An income of about £40,000 a year has already been assured to the Trust on the basis of seven-year covenants; and further substantial subscriptions are expected.

The Trust will seek by a variety of means to stimulate a keener interest in the general appearance of towns, villages and countryside, including the avoidance of unsightly development. The Trust proposes: to commission expert reports on architectural and town planning questions and convene meetings to discuss them; to arrange conferences in selected towns to discuss the planning problems and potentialities of the locality; to stimulate public interest by the provision of films suitable for showing at meetings of interested bodies and in schools; to co-operate in the preparation of material for television programmes; to organise travelling exhibitions; and to contribute towards the cost of appropriate activities of existing societies.

The Board of Trustees will not seek to act as arbiters either on questions of architectural taste or on technical matters, but the R.I.B.A., the Royal Institution of Chartered Surveyors, the Institution of Civil Engineers, the Institution of Municipal Engineers, the Society of Town Clerks and the Town Planning Institute have agreed to form a joint committee, whom the Trust can consult on such matters.

The Trust is also establishing a close relationship with existing amenity societies, both national and local; and in carrying out its activities it will avoid duplicating work which they are already effectively doing.

The Conference

The Conference assembled in fine weather on Wednesday 10 July. There were 930 members—a record. In the afternoon, the President, Mr. Kenneth M. B. Cross, opened an exhibition of work by the Oxford School of Architecture in the Ashmolean.

At Middlefield Farm, Witney, Mr. and Mrs. F. R. S. Yorke were at home during the early evening. After dinner, members gathered at St. John's College for the Informal Reception by the President of the Berks, Bucks and Oxon Architectural Association and Mrs. Steward Smith, and the President, R.I.B.A., and Miss Jenifer Cross.

The college buildings and garden were discreetly floodlit and refreshments were served in Canterbury Quad. Other attractions were the Library, open for inspection of documents of architectural and historic interest by courtesy of Mr. Howard Colvin [Hon. A], and, in the garden, a charming programme of music arranged by Mr. Guy Mitchell consisting of songs and madrigals by the St. Michael Singers and music for harp and flute.

The work of the Conference commenced next morning at the Inaugural Meeting. Mr. T. S. R. Boase, President of Magdalen, Pro-Vice-Chancellor of the University and editor of the Oxford History of English Art, made his débüt on the stage of the Playhouse with a brilliant address of welcome. The proceedings that followed are reported fully elsewhere.

Praiseworthy efforts had been made to ensure that speakers from the floor should be audible by the provision of microphones which were handed round by ushers from the Oxford School of Architecture.

The slides shown by the principal speakers added considerably to the interest of the first session, which ended with the calling together of those who proposed to take part in the next meeting for a study group to canalise the discussion. This may well become regular practice as it does much to make best use of the time available.

By now the fine weather was breaking up and the Conference assembled at Trinity for the Garden Party armed with macs and umbrellas. Fortunately the rain held off long enough



'Dancing in the Long Library made a brilliant spectacle'

for the folk dancers to get through their programme to the pipe and drum music of Dr. Kennedy Schofield. Hardly had the last figure been skipped when the rain came down in earnest, and the tea marquee was sought by one and all both for refuge and refreshment. Density per acre then reached a maximum.

It was still raining when members arrived at the Town Hall for the Dinner.

'The manner in which almost everything seems to have got just in its right place on this difficult and confined site is a triumph of planning,' wrote THE BUILDER in 1892, referring to the winning design for this building by Henry T. Hare. The same words would appear appropriate to describe the dinner arrangements.

On Friday, there was again a large attendance at the Playhouse for the discussion on the Conference papers, winding up with a very witty speech from Mr. Reginald Cave.

In the afternoon groups for the perambulatory tours formed up and many members must have regretted that they could not go on more than one.

(It will not have escaped the party that visited Keble that brickwork has weathered better than stone in Oxford.)

By now spirits had risen since the weather had cleared and the prospect of a wet night for the Ball no longer haunted us.

During the day a high wind had made difficulties for the organising committee in charge of the erection of marquees, but by the time the twelve hundred and fifty members and guests had arrived all appeared to be under control. The bars that had had to be placed in the Great Hall impeded circulation to some degree but in every other way the organisation was a triumph.

The floodlit grandeur of Blenheim, where 'English Baroque culminates', in the words of Mr. John Summerson, was a superb setting for the Ball. Dancing in the Long Library to two bands made a brilliant spectacle, although there were some who thought Rock 'n' Roll inappropriate in such surroundings. And so in the small hours of Saturday, the Oxford Conference, the largest and one of the most successful ever held, drew to its close.

For this, credit goes to the hard-working Conference Committee, especially the local executive committee of members of the Oxfordshire Society of Architects under the chairmanship of David Booth, supported by Geoffrey Beard,

Honorary Secretary, Thomas Rayson, Ivor Beese, organiser of the Ball, E. R. Chandler, J. A. D. Cox, Alan Stamford, and Reginald Cave, who was responsible for the admirable handbook. The Oxford School of Architecture who provided an exhibition of work, ushers for the Playhouse, under David Burton, and the Folk Dance Team must also be mentioned.

Our thanks are also due to the Heads of Houses and Fellows who allowed their colleges to be used for Conference accommodation and functions.

Next year we meet at Newcastle. Alas that Seaton Delaval is not intact.

Presentation of Architecture Bronze Medal

On 13 July Mr. A. J. Powell [F], on behalf of himself and his partner, Mr. J. H. Moya [F], received from the President, R.I.B.A., the R.I.B.A. Architecture Bronze Medal in the area of the Berks, Bucks and Oxon Architectural Association for the Fair Mile Hospital at Wallingford. A replica of the Medal was also presented to Sir George Schuster, Chairman of the Oxford Regional Hospital Board.

Council Business

At the meeting of the Council on 2 July, the President in the Chair, it was agreed to leave it to the Public Relations Committee to discuss the possibilities of showing an exhibition of Turkish Architecture at the R.I.B.A. in the spring of 1959.

It was also agreed to invite Mr. Gontran Goulsen [A], Past President of the Architectural Association, to give the Christmas Holiday Lectures for Boys and Girls in December 1957. Other points from the Minutes are given on page 438.

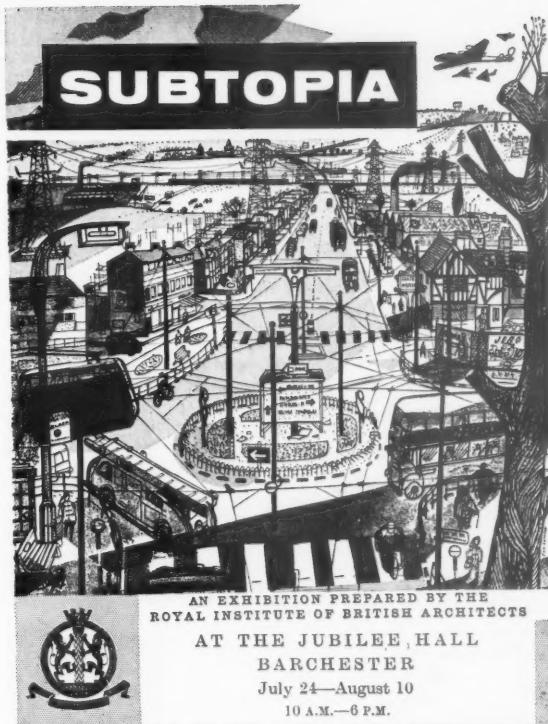
The Annual Report

The Council have decided that the Annual Report should be sent to all corporate members overseas as well as in the United Kingdom.

This will be done in 1958. The Annual Report is published early in May; on account of expense, it will not be possible to send it to overseas members except by surface mail, so that overseas members may not receive it in some cases until, perhaps, the middle of June.



The Conference tour of Victorian Oxford. Party under the guidance of Mr. A. Llewellyn Smith [F]



Reproduction of the exhibition poster with fictitious lettering in the space allotted for local announcement

Travelling Exhibition—Subtopia

A large number of applications for bookings of the R.I.B.A. travelling exhibition on 'Subtopia' have been received and the two copies of the exhibition are booked up for the autumn.

The Institute is prepared to lend the exhibition, free of charge, to responsible bodies for showing in art galleries, museums, public libraries, department stores and other suitable places frequented by the general public, the only obligatory expense to the borrower being the cost of forwarding the exhibition to the next centre. The itinerary will be arranged so as to ensure that the distances between centres are as short as possible.

It would be of great assistance if those wishing to borrow the exhibition would communicate as soon as possible with the Royal Institute, and it is particularly helpful if intending borrowers can give as wide a choice of dates as possible in order to facilitate the planning of an economical itinerary.

A special pamphlet has been written by Ian Nairn—the author of the original Subtopia articles—and copies of this leaflet will be sent, for free distribution, to each of the centres taking the exhibition. In addition a special poster has been designed for local display illustrating the theme of the exhibition, and copies of this together with information for the Press will also be available.

Miss Solly

The JOURNAL offers its congratulations to Miss B. N. Solly on completing twenty years with the Architects' Benevolent Society.



British Architects' Conference 1957

Finance, Design and Durability of Buildings

Discussion on the papers read by Thomas Mitchell, M.B.E., B.Sc., A.M.I.Struct.E. [4], J. L. Womersley, M.T.P.I. [F], A. W. Cleeve Barr [4] and J. Eastwick-Field, B.A. [4]

INAUGURAL MEETING

The President: I have great pleasure in calling upon Mr. T. S. R. Boase, M.A., President of Magdalen College, Pro-Vice-Chancellor of Oxford University, to deliver his address of welcome to the Conference.

Mr. T. S. R. Boase: It is a great honour to welcome you here, an honour accompanied by both considerable pleasure and considerable trepidation. That trepidation arises from two causes. First of all, there is the perfectly simple one that I have never appeared on the stage of the Playhouse before.

Secondly, architecture is such a constant source of preoccupation to everyone connected with Oxford University—either the preservation of old architecture or the creation of new architecture. But old or new, we are always doing something wrong.

As you know, the University has recently launched an appeal on a scale it has never undertaken before for the preservation of its crumbling stones. We look across with envy at Cambridge, where the intelligent builders chose their quarries with much greater discretion and where a little water washes everything new and clean and white again.

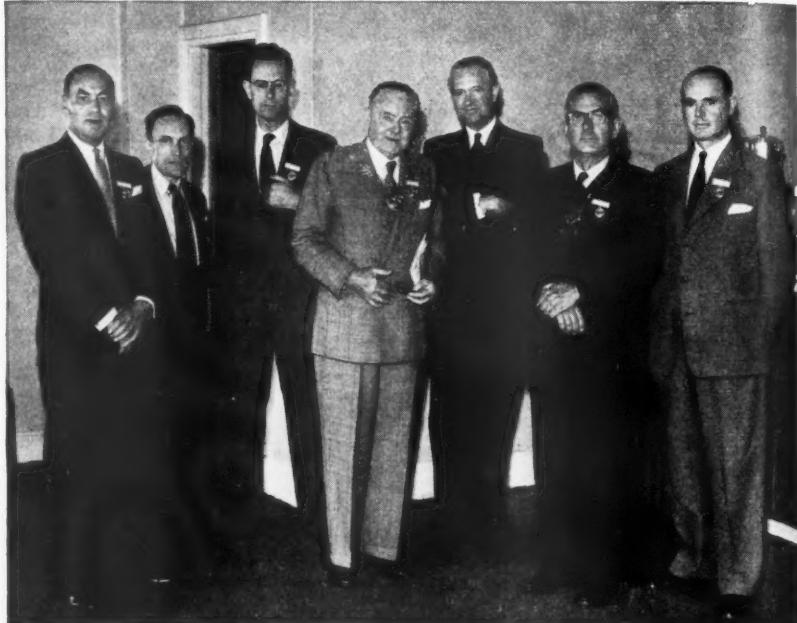
Here the problem has been an absolutely different one, one that puts a heavy burden on the University. And now, for the first time, with a great corporate effort by the University and all the Colleges—and corporate efforts have never come easily in Oxford—this appeal is being made.

Oxford, of course, is not only a museum town of ancient architecture. It has also in the university buildings a museum of measures of restoration, all of them the subject in their time of fierce controversy and criticism from Wyatt onwards. We have a letter from James Wyatt in the archives of my College which begins:

'I like very much the idea of taking down the old cloister.'

From Wyatt onwards to the pages of the GENTLEMAN'S MAGAZINE, Morris and the 'Anti-Scrape' up to Mr. Betjeman and the ARCHITECTURAL REVIEW our methods have been closely watched by the world at large. As the appeal goes on and there is a response (and it has been wonderfully encouraging so far) many problems will arise on that side of building—problems of restoration. But, of course, we are also in constant need, in the expansion of university life as a whole which goes on today, of new buildings.

As many of you know, a large new science area is being planned and is under discussion at the moment. Plans and discussions have to pass through what are perhaps somewhat inadequate forms of



Left to right: Mr. T. Mitchell; Mr. J. Eastwick-Field; Mr. A. W. Cleeve Barr; Mr. K. M. B. Cross, President, R.I.B.A.; Mr. T. S. R. Boase; Mr. E. Steward Smith, President, B.B. & O.A.A.; Mr. J. L. Womersley

university government, and not only a little inadequate but extremely democratic. They have to pass through a series of committees; then through Convocation; then through all the arrangements of city planning committees; and at Oxford they generally end up with the Royal Fine Art Commission.

It is extremely difficult to know how buildings nowadays ever get started, and I am sure our architects must often feel the problem is insuperable.

This is an idea that would probably not be put forward in quite recent times, but I think today we should feel that the 19th century, in the great period of expansion in building in Qxford, on the whole did fairly well. There is the great building of Cockerell just across the street which always seems to me to be one of the noblest buildings in Oxford—and that is a very high claim. Then there is the work of Butterfield, the new part of Merton and Keble, St. Philip and St. James, the great and skilful work of Bodley and Garner in the buildings on Magdalen. The record, as a whole, is a creditable one.

I only hope in this age, when the battle of the styles has become even more complicated than it was then, that the 20th century, when posterity can look back upon

it, may be found to have done as well; so that we shall be very dependent on all of you.

I said that as well as trepidation there was great pleasure in welcoming you here, and it is a particular and personal pleasure, because I personally owe so much to your Institute. Going through the doorway and down into the bowels of the building, hesitating and trying to remember how the door of the lift opens, and then shooting up to the Library, one gets such a cordial welcome. Your admirable staff always manage to seem interested in what one is looking for, and books and documents come with remarkable rapidity. I should like to take this opportunity of saying how very much this is appreciated by very many people.

That welcome which is always given to anyone who has recourse to the Library I should like now to give back to you here and to say how very honoured we are to have you here in Oxford and how very much we should value any of your opinions about what is architecturally going on in this place. These opinions no doubt will be given with no unanimous or common voice.

We wish your Conference the very best

and happiest of times in our university town.

The President: My first duty is to express our very sincere thanks to Mr. Boase, President of Magdalen College and Pro-Vice-Chancellor of Oxford University, who has so kindly come here this morning to welcome us at the Inaugural Meeting of our Conference.

It is, I am sure, a great joy for us all to be here in Oxford. It would, I think, be difficult to find any other place in the British Isles where, within the limit of half of one square mile, can be found such a wealth of architectural achievement, except—of course—Cambridge.

It is, I believe, 33 years since we last came to Oxford for a conference and all would agree that our second visit is somewhat belated. But what a contrast with the 1924 Conference so far as general numbers are concerned! The records show that the numbers attending on that occasion were 268, whereas this year we have an all-time record for our annual British Architects' Conference of no less than 931.

I suppose that the growth of numbers at our annual Conference is symptomatic of the great expansion of the role of the Institute since those far-off days of 1924.

As those of you who have experience in these matters will know, the organisation of a conference entails a vast amount of work on the part of those directly responsible. We are extremely grateful to the Berks, Bucks and Oxon Architectural Association for their invitation to hold the Conference here and for the immense amount of hard work which they have carried out in making the preparations. It is perhaps invidious to mention individual names, as so many have been concerned; but I must refer particularly to the President of the Association, Mr. E. Steward Smith, who has acted as Chairman of the main Conference Committee, and Mr. David Booth and Mr. Geoffrey Beard, who have acted as Chairman and Honorary Secretary respectively of the Oxford Committee which has been responsible for the detailed arrangements.

We are all most grateful also to Mr. Spragg, our tireless and active Secretary, and to Mr. Williams and the R.I.B.A. staff for all the hard work that they have put in.

Our warm thanks are also due to His Grace the Duke of Marlborough and to the various colleges and other bodies who have helped us in many ways.

There is also a marked contrast between the conferences held in those earlier days and those which are arranged today in that we deal with rather more pedestrian subjects. In 1924 the chief paper dealt with the history of Oxford. Today we are concerned with economics, and the four papers on the general theme of the 'Finance, Design and Durability of Buildings' are really a continuation of our discussions at Harrogate in 1955 and Norwich in 1956.

As you are aware, there has recently been an appeal for funds for the repair of various buildings in Oxford whose stone

work is now in very bad condition. It is clear that lack of scientific knowledge in the past is responsible to some extent for the present state of affairs. In some cases, there may have been understandable lack of foresight in not putting aside capital sums, properly invested, to form a sinking fund for building maintenance and in not making arrangements for the regular inspection of these historic buildings, so that the necessary repair work could be carried out before the decay had assumed alarming proportions.

Whilst I am sure we all view the present calamitous situation with the greatest sympathy, I must emphasise that the Conference is not primarily concerned with the preservation of ancient buildings but rather with the economics of building maintenance and its impact on the work of an architect today.

The Secretary: A letter has been received from Mr. W. S. Payne of the South African Institute which reads:

'I am in receipt of a copy of a letter to you from the Registrar of the Institute of South African Architects notifying you that I have been authorised by the Central Council of this Institute to convey to the R.I.B.A. at the Conference to be held at Oxford in July the cordial greetings of the South African Institute.'

'As I have already informed you I find that I will not be able to attend the Conference and I am therefore writing to convey by letter, which I now do, the expressions of goodwill which I had hoped to express personally at the Conference and to say how much I regret my inability to attend.'

'With all good wishes for a successful Conference,

I am,

Yours very sincerely,
(signed) W. S. PAYNE.'

Mr. E. Steward Smith [F] (President, Berks, Bucks and Oxon Architectural Association): It is a great honour to have the privilege of expressing this morning the thanks of this meeting to our President for his Inaugural Address to this largest ever Conference.

This year is unique, for never before at a conference have we welcomed our President from such a world tour of our overseas Allied Societies. After such a strenuous time, there might have been good excuse for not giving us an address, but he has in fact given us an outstandingly informative and interesting one. We have appreciated it and we have gained knowledge from the experience he has acquired over the years.

The President: Mr. Thomas Mitchell, Mr. J. Lewis Womersley, Mr. A. W. Cleeve Barr and Mr. J. C. Eastwick-Field have prepared papers on the theme 'Finance, Design and Durability of Buildings', copies of which have been circulated to members of the Conference.¹

I will now call upon the speakers to read synopses of their papers in order to give time for a discussion this morning and at the follow-up meeting tomorrow.

¹ The Conference papers were published in full in the July JOURNAL.

FINANCE

**Thomas Mitchell, M.B.E., B.Sc.,
A.M.I.Struct.E. [A]**

I PROPOSE to start by giving you some simple thoughts about finance. First, a definition of the initial word of the conference title. I asked my accountant for some books to read, and in one on business finance published this year² found what I wanted. I quote:

'In a modern, money-using economy finance may be defined as the provision of money at the time it is wanted.'

Here is an admirably simple statement, free of jargon, one which the wives present will appreciate as much as their husbands. If I add that the late Lord Norman, for many years Governor of the Bank of England, considered credit to be largely an emotional matter, rather than a science of watching gauges and turning taps, I shall have the wives in entire agreement with me.

Considerable consequences, however, arise from our simple definition.

Money is needed for new building. Enough may already be possessed, or it may be received as a gift; but if not, it must be hired in the same way that during building operations the builder may have to hire scaffolding, a crane, and so on.

Stocks of money are called capital, and form the source for hiring. Capital arises basically from real savings. In case any of you have a lurking doubt that that may not be so, and that it can be created by writing a figure with a lot of noughts after it in a book in a bank, let me quote from Mr. T. M. Bland's presidential address this year to the Institute of Bankers:

'No amount of financial wizardry can bring into being capital that does not in fact exist.'

The hiring may be long term or short term, and the method may vary from an offer—which may take various forms—on the New Issue Market in the City to a short-term bank loan.

Local authorities in the past have generally hired their money from the Public Works Loan Board, but recent policy has forced them on to the open money market. I am very conscious that this is an inadequate statement of the very great complexities of local authority finance, but that is not our main subject. The Institute of Chartered Accountants are holding a conference at the present moment in Oxford, and if anyone wants to know more about it, they had better go along there.

The hiring charges, or rate of interest, vary from time to time, and are influenced by Bank Rate. It is no part of our business here to wonder why. It is sufficient to note that during high interest periods certain types of building may become virtually impossible.

What is being paid? Bank Rate at the moment is 5 per cent: private borrowers in general (and by that I do not mean you and I but substantial people) are

² F. W. Paish: *Business Finance* (Pitman and Sons, 1957).

having to pay about 6 per cent and local authorities about 5 per cent to 5½ per cent; the City of Nottingham raised a 5 per cent loan recently at 9½—i.e. to get 5 per cent it had to give 2½ per cent discount on the capital, and the following are taken from the list of recent issues given in THE TIMES of 9 July:

'Birmingham 5 per cent 1973-75, issue price 98½, quoted at 3½ per cent discount.'

'Brighton Corporation 5 per cent 1969, quoted at 1 per cent discount.'

We are not finished with finance, however, when the money for the erection of a building has been found, by borrowing or otherwise. Interest on the capital must be provided for, and also, if the capital has been borrowed, arrangements must be made for its repayment, generally by adding to the annual interest payment a further annual sum which in a selected period of years will repay the original loan. There are, however, other methods. The Government and some of the large local authorities never pay their loans at all, but merely raise fresh loans to redeem the capital of existing ones. Hence the National Debt.

But that is not all. Money must be set aside annually for repairs and renewals necessary to maintain the building as a going concern, and I want you to distinguish between that and the next item I am going to mention. Further, since every building becomes a wasting asset as soon as it is erected, sums must, or perhaps I ought to say should, as they know in Oxford, be set aside annually to replace the wasted portion of the asset—the expired capital outlay—or to make good depreciation, as it is more commonly called—so that when the life of the building has expired the original capital may remain intact. If these sums are wisely invested in spite of fluctuations in labour and materials, there should be a sum available to replace that building. If the money is very wisely invested, there might be some over.

Finally, a great many types of buildings give rise to taxation charges.

The taxation system in this country very largely and in many ways encourages cheap capital cost in new buildings and a deliberate acceptance of relatively high maintenance cost, particularly in the case of successful industrial and commercial concerns, because maintenance charges are an allowable charge against profits for taxation, whereas capital costs are not, except in the case of industrial and agricultural buildings, which receive certain allowances—at present an initial allowance of 10 per cent and an annual allowance of 2 per cent for industrial buildings, and 10 per cent annually for 10 years for agricultural buildings.

These allowances have varied in the past, and, like all other taxation matters, are subject to annual review by the Chancellor of the Exchequer.

Is this encouragement of cheap capital cost and acceptance of high maintenance cost sound policy?

In my written paper I quoted some figures for the building labour force during 1956

which had been given to me by the Ministry of Works. Let me refresh your memory. During 1956 the average total labour force employed by building and civil engineering contractors during that year was 1,186,000, and of these, 327,000, equivalent to 27·5 per cent of the total, were employed on repair and maintenance work only.

That is to say, 27·5 per cent of the whole of the labour force employed by contractors was non-productive in the sense that these 327,000 men produced no new buildings, did nothing to raise our standard of living, did nothing to add to the capital resources of the country, but merely spent their time retarding the rate of deterioration of buildings already existing.

This is not the whole picture, however, for Government departments, local authorities and public utilities—British Railways, the Central Electricity Authority, and so on—employ directly a very large number of building workers for maintenance work.

The Ministry of Works has no exact record of their numbers, but it has made a tentative estimate of the value of the work carried out by this directly employed labour. The value of the repair and maintenance work carried out by contractors' labour (the 327,000) during 1956 was £399 million, but if the directly employed labour is included it is thought—and thought fairly—that the figure would be between £630 million and £650 million.

Even then no account has been taken of the large amount of maintenance work—particularly decorating, but not only decorating—carried out for payment by tradesmen working in their spare time, nor of the amount, possibly as great, carried out by householders themselves, the 'do it yourself' brigade.

A saving of only 5 per cent of £650 million would give us £32½ million which, with the same labour force and the same annual expenditure on building, could be devoted to new construction instead of being frittered away maintaining what already exists.

Quite a lot of new building can be obtained for £32½ million.

Here are the amounts spent on various categories of buildings during 1955, taken from the current issue of the Government publication entitled *The National Income and Expenditure*, issued by the Central Office of Statistics and published by H.M. Stationery Office. 1956 figures have not yet been published, and as I read them you should bear that £32½ million in mind: Education, £78m; health, £15m; police and prisons, £4m; roads and public lighting, £18m; sewerage and land drainage, £32m; electricity supply, £48m; water, £33m; agriculture, £25m; coalmining, £30m; railways, £9m; air transport, £6m; Post Office and radio, £6m.

Think what a difference £32½ million could make to that list. With it, if the Chancellor did not divert it to other uses (*laughter*), we could have three times the number of health buildings (I can see where the hospital architects are by the way they rear up!), or we could rebuild our obsolete prisons, or rebuild quite a number of

railway stations—many more I expect than the Transport Commission has in mind—and so on.

But as productivity on repair and maintenance work is lower than for new construction, the labour force freed by any savings on maintenance work would be capable of erecting new buildings of a value greater than the monetary saving, provided the additional finance were available.

Here is something which anyone can grasp. It appeals to the ordinary man in the street. For if the outcome of your deliberations were to be a saving of the order of the one I have mentioned—and 5 per cent does not sound very ambitious—many Treasury problems would be solved overnight. It is the discount an ironmongery concern gets for paying the bill.

Here, then, is the central theme of the Conference. If our country is to prosper we face a rising demand for new buildings. It cannot help us, in our economic struggle with the rest of the world, to erect them in such a way as to use up in subsequent years a large labour force to maintain them, and by so doing deprive ourselves of new construction. The new buildings so lost could contribute directly to raising the standard of living: but the maintenance work merely preserves the existing situation.

The problem is not by any means as simple as it might seem at first sight. It is not just a question of saying 'we won't have flat roofs because pitched roofs can be covered with materials which last longer with less maintenance.' Later speakers will explore that. A short consideration of that apparently simple proposition reveals many considerations which soon turn it into a very complicated issue.

The gist of what I have written about the matter is this: can we in the new buildings of the years ahead reduce maintenance costs and at the same time make them agreeable to look at and make better buildings?

To do so will involve better briefing by clients, more consideration by them of the matter of building large schemes in stages (by that I mean technical as well as financial considerations), and a more responsible outlook by them towards the regular inspection of their buildings and to the intelligent execution of unavoidable maintenance work.

On our part we must study carefully the possible behaviour of new or unfamiliar materials, and be more systematic in our collection of information about the performance of materials and components in actual buildings: see that parts which of necessity wear out or require maintenance have accessibility commensurate with the frequency of the operation and its basic cost, bearing in mind that labour costs are likely to go on rising and that craft skills in the building industry are changing: avoid loose thinking about so-called temporary and limited-life buildings.

Finally, in this Conference let us be quite clear the whole time that we are architects, that it is our profession to *design* buildings. If we attempt to contribute to the solution of this problem only in terms of building technology we shall have failed to do our

job. We must create buildings which externally and internally please the eye and the emotions.

In attempting to do so with modern materials, although it is obvious that so far we have been unable to emulate the subtleties of appearance in the use of traditional materials to which generations of architects contributed, let us keep refinement in front of us as an aim, remembering that appearance consists not only of mass and colour, but that the texture and light-reflecting qualities of materials are among the finer instruments we possess.

It is one of my normal daily pleasures to view from my window in Bedford Square the strong contrast created by the dark brickwork and the cream-painted stuccoed window reveals and white-painted window frames and sashes on the other side of the square. It is a very pleasant pattern indeed.

Russell Square once looked much the same. Then someone abolished the annual maintenance cost of repainting the window reveals by substituting brown faience, and in doing so threw the baby out with the bathwater; but the baby would not necessarily have been saved merely by making the faience cream coloured. By that I don't wish to infer in any way that cream-coloured faience is undesirable, or that good effects cannot be obtained with that material and dark-coloured brickwork, but merely that in this particular case the effect would differ from the one to which we have become accustomed, and it is that type of subtlety in handling materials that perhaps we have not considered enough to date.

I give this little example, not by way of design instruction—I would not presume to do so—but to ask you in discussing the conference subject to keep constantly in your thoughts the whole of the grammar of design.

At this stage I ought to start showing some slides. I did take some coloured pictures with that idea in mind, but we thought better to leave them to the other speakers. If I did show you them I should probably start with a shot taken from my own house. It is rather 'cute'—an angle shot taken from the roof with slate tiles in the background and a flat roof in the foreground. They are being repaired at the moment to the great upset of the household. They have lasted little short of 25 years. On the left you see the tile roof that covers most of the house. As far as I can judge

by the texture of the tiles and as far as my personal knowledge goes, it has never cost a penny for maintenance, and does not look like costing a penny for many a long day. If ever it does need a little maintenance the expenditure can be commensurate to the damage. In other words, you can renew a single tile.

I am going to leave you at that homely and tantalising point because it is now my pleasure to hand you to other speakers who have far more interesting things to say than I can do in this introduction, and in addition have real slides to show you.

STRUCTURES

J. L. Womersley, M.T.P.I. [F]

AFTER PASSING the draft of my paper for criticism to an intelligent but kindly architect colleague, he returned it to me with the comment 'It is possible to feel at the end of the paper that no one but a madman would be so irresponsible as to design a flat roof or a curtain wall ever again'.

From this I judged that some of the points I had intended to convey had at least gone home, even if they had, perhaps, been driven a bit hard.

I want to confirm, this morning, that the reason for selecting the aspects of structure discussed in my paper from what is obviously a very large field is that in my opinion it is from them, or from some of them, that criticism of our work is most likely to arise. As I understand the purpose of this and recent conferences to be the excellent one of endeavouring to rationalise building design in its fullest sense, it seems to be logical to try to eliminate the more obvious faults first and tackle the others later on.

I cannot help feeling rather worried by what appears to be an intrinsic assumption on the part of many members of the profession that every building will be designed with lightweight wall cladding and a felted roof. I am worried far more by the look of surprise which some of them bestow upon

me when I ask them why they are doing it.

Alvar Aalto gave his own view recently in no uncertain terms. In effect he said—what nonsense to ask whether I am modern or old-fashioned. I know what materials are available to me, I know what my problem is and I design my building accordingly.

Architecture, surely, should be just as simple as that. If we have really equipped ourselves to be architects, and not merely curtain wall exponents or precast concrete advocates we should have no prejudices, but start each programme with an open mind.

I am conscious, however, that having pointed out snags and snags, my paper might with advantage have had a second and more constructive instalment, answering the question 'where do we go from here?'

In this introduction, therefore, I hope, amongst other things, to suggest some conditions where lightweight materials appear to be appropriate and others where they do not.

I shall inevitably have to leave you to decide upon the appropriate construction in the multitude of cases which lie in between!

[A number of slides were then shown of which a few are illustrated below.]

This system of construction using storey-height crane-handled precast concrete panels has proved to be competitive in cost with traditional housing as well as giving significant savings in site labour (Fig. 1).

The possibilities of exploiting such a system for multi-storey development by highly organised and mechanised contracting organisations are obvious.

So far as I know, this particular *in situ* reinforced concrete project at Birkenhead is the speediest multi-storey dwelling system yet produced (Fig. 2). Known as the 'Prometo' system, it uses sliding shuttering, raised by a series of hydraulic jacks, for a box-frame type of structure, the whole of one leg of a T-shaped slab type block going up at the rate of one storey in two days—one day for the walls and the next day for the floors. In this respect it beats many of

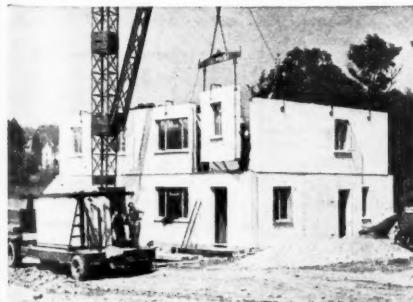


Fig. 1

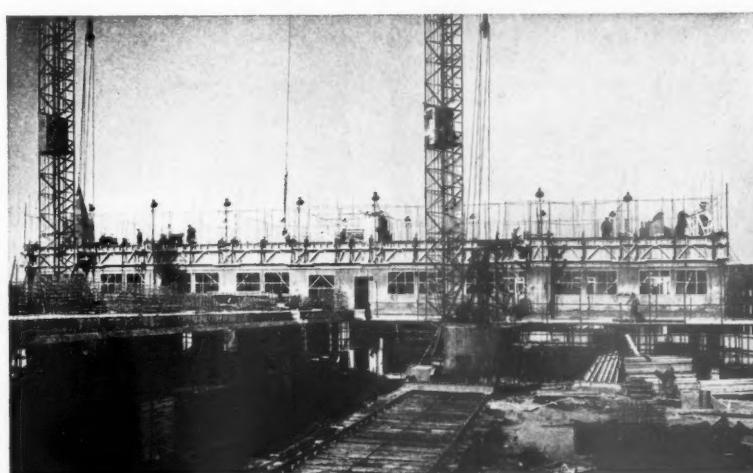


Fig. 2

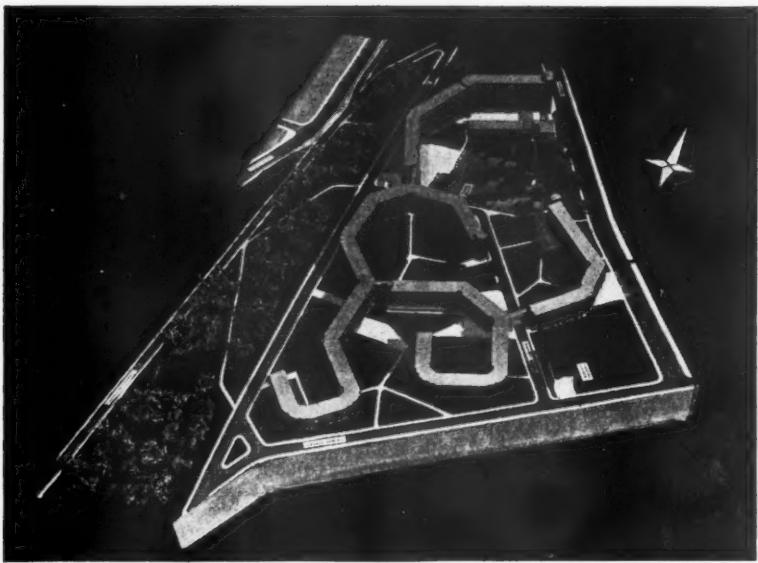


Fig. 3

the Continental schemes using sliding shuttering where, although walls went up at a prodigious rate, insertion of the floors took quite a long time. The contract time for this eleven-storey block of some 240 maisonettes, costing £617,000 (i.e. about £2,500 per dwelling) is a mere twelve months. It would seem likely that with more experience the cost might be reduced.

I have referred in my paper to the need for greater collaboration between architect and engineer at the early design stage and to the added value of bringing in the manufacturer and contractor at this stage also. This sort of liaison was the vital factor underlying the Copenhagen and Birkenhead schemes just shown. The most significant of my own experiences in early-stage architect-engineer collaboration is in connection with the Park Hill scheme of multi-storey flats and maisonettes at Sheffield (Fig. 3).

This slide shows the alternative forms of structure put forward by the architects to the engineers, Messrs. Ove Arup

and Partners, the desire being to produce a strictly repetitive structural system which would provide for a variety of dwelling types from bed-sitting room flats for one person to family maisonettes for five persons. A staircase core is common to all four schemes, the fourth 'H'-frame type being the one selected (Fig. 4).

This shows the design of the lightweight panel which consists of a storey-height metal frame infilled with vitreous enamelled and insulated steel sheet panels secured with beads in mastic (Fig. 5). Back-up walls of 2½ in. partition blocks plastered are provided to all upper floors as required by local byelaws. A timber surround is used as a template for the cross walls and takes up tolerances between the walls and the standard metal sections.

This slide shows the conventional scheme actually carried out (Fig. 6).

The present-day basic cost per maisonette on a flat site is £1,600 compared with £1,400 when tenders were first received in mid 1954.

This is a block of maisonettes, built in conjunction with the Ministry of Housing and Local Government (Fig. 7).

Cross walls are 15 ft. apart and are of 9 in. calculated brickwork. Panel walls are of factory-made timber framing alternating with timber window panels. External covering is of cedar boarding on building paper. Internal covering is of aluminium-foil backed plasterboard with skim coat of plaster.

To leave housing—the small building unit where apparently no lightweight cladding except timber panels can compete with brick or concrete—we turn to the larger buildings. In the case of power stations, omnibus garages and large factories the boot may be on the other foot.

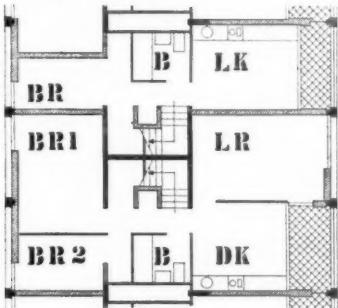
So far as power stations are concerned, whilst there are undoubtedly advantages in using large factory-made components to provide an umbrella for plant, thus leaving good facing bricks and bricklayers available for housing human beings, the case for a saving in capital cost has not, apparently, been made (Fig. 8). The following is the observation of an architect who has probably been concerned with as many power station projects as anybody.

'Five years or more ago we were stressing that a light cladded building for power stations was cheaper than traditional building. Today I am sure it would be difficult to prove such a case unless you could effect a considerable reduction on the cost of the structural frame and the foundations.'

The lack of a clear-cut capital saving is perhaps disappointing but nevertheless the other advantages—savings in steel in secondary structural members (there is apparently little saving, because of reduced weight of cladding, in the primary structure), savings of site labour, speedier plant erection and occupation—are sufficiently vital to make out the case for lightweight claddings.

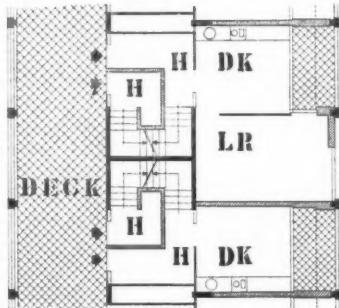
This photograph of the interior shows the lightness of the steel framework supporting the cladding and the good natural lighting achieved by the profile used (Fig. 9).

BELOW DECK



1 & 3 PERSON FLATS

DECK LEVEL



4 & 5 PERSON MAISONETTES

ABOVE DECK

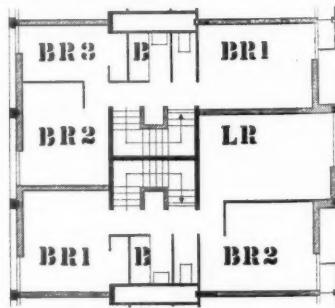


Fig. 4

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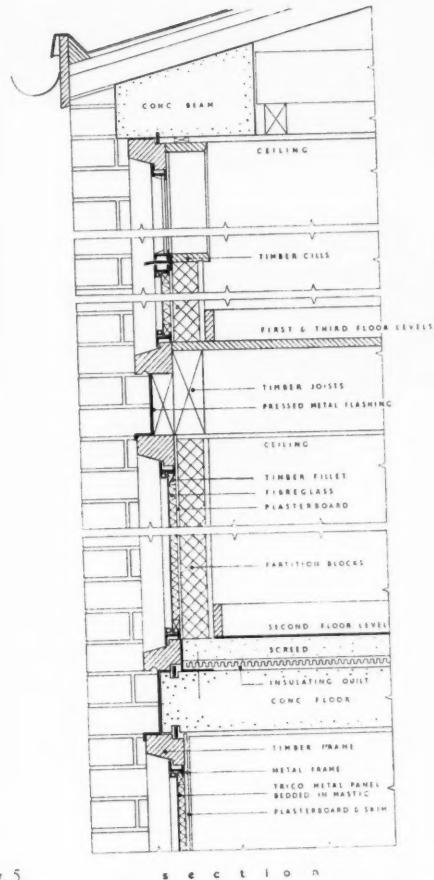


Fig. 5

SECTION

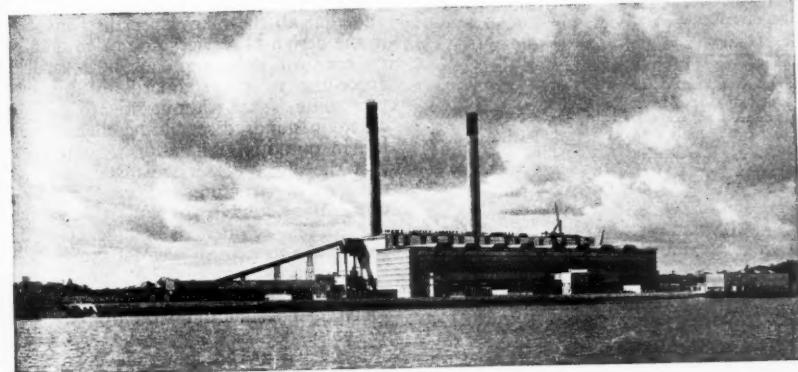


Fig. 8

My final references are to two large omnibus garages, one completed and the other in course of construction. They illustrate, in general, two completely different approaches to structure in solving an almost identical problem and, in particular, the use of bituminous felt roofing under two very different sets of conditions.

This view is of the interior of the first garage which consists of three bays of parking space 97 ft. 6 in. clear span and 240 ft. long and a workshop with pits 83 ft. span of similar length (Fig. 10).

The construction is of reinforced concrete columns with a barrel-vaulted roof of shell concrete $2\frac{1}{4}$ in. thick on cambered edge-beams of prestressed concrete. Walls are of brickwork tied into the concrete framework. Maintenance of the interior is almost nil.

This slide shows part of the other garage now being constructed. This one, again, has three parking bays plus a workshop bay with pits, this time all 98 ft. clear span and 308 ft. long—quite a bit larger than the last, but similar clear spans (Fig. 11).



Fig. 6



Fig. 7

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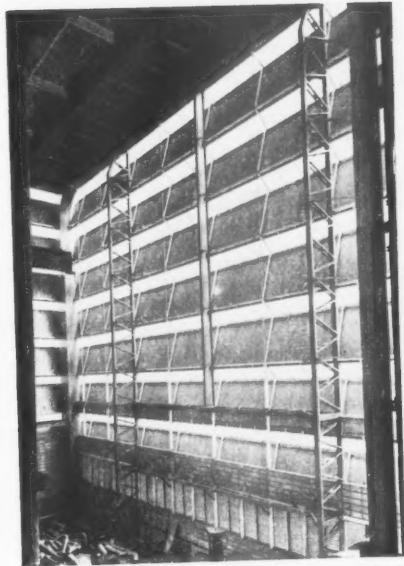


Fig. 9

Due initially to a desire for speedy erection, combined with the fact that part of the site is filled ground and part is under-

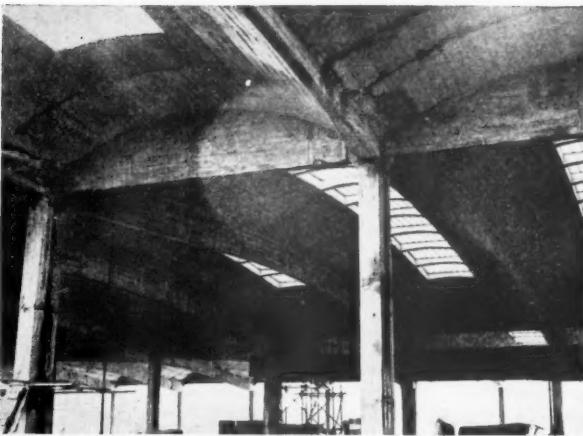


Fig. 10

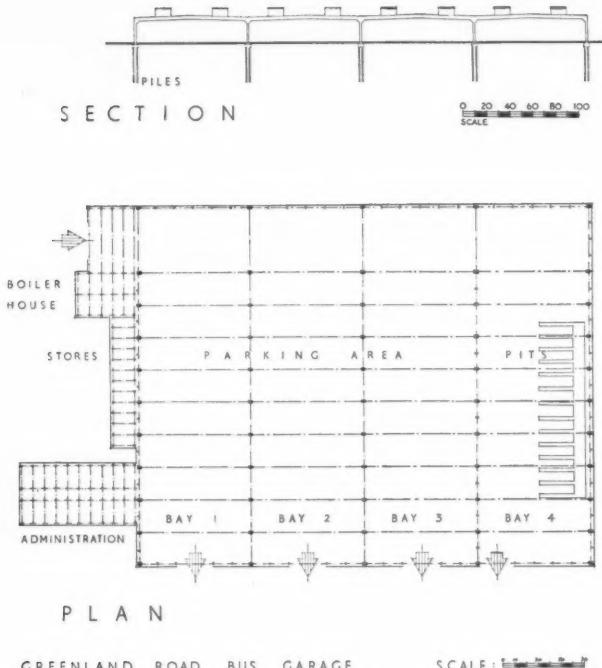


Fig. 11

mined, it was decided to use the lightest possible structure, formed of factory-made parts.

The castella beams save from 5 ft. to 6 ft. in the height of the building as compared with a conventional lattice girder which, in view of the size of the building, represents quite a cube! Floor space is free of any scaffolding and building work can proceed below as soon as some of the lightweight roof is in position (Fig. 12).

A 3ft. 6 in. dwarf wall sits on the ground beams above which wall cladding, consisting of an insulated aluminium trough sheeting and patent glazing, will hang from the steel frame independently.

THE SERVICES

A. W. Cleeve Barr [4]

BEFORE SHOWING you some slides I have a few points to add to the paper on the services which has been circulated.

In this paper I have pointed out that year by year the services account for an increasing proportion of the cost of buildings. Today they constitute, with builders' work, from a quarter to a third of the cost of ordinary buildings—schools, housing, offices—and a much higher proportion for buildings of a specialist character. As the physical standards of living increase so we

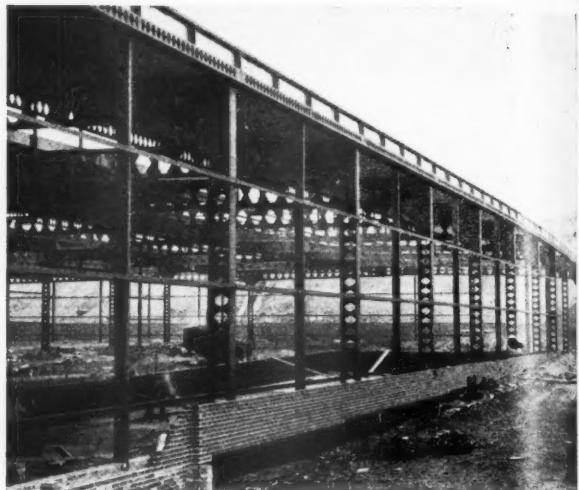


Fig. 12

can expect a further increase in the services, and in the number of pipes, wires, fittings and gadgets to be accommodated.

Mr. Mitchell has just stressed the value of the 5 per cent maintenance saving in permitting additional buildings to be built annually. The emphasis in my paper is largely on saving in capital cost because by saving in capital cost one can equally have a much greater building programme.

I have stressed the need for keeping a sense of proportion about the services, and the architect's responsibility in this connection. When capital economies are the order of the day, only the architect, on behalf of the client, can ensure that the money available is reasonably distributed between the various elements of a building, and that all the many specialists involved in the design of services do not go off each on his own, designing each in a vacuum, according to the standards of his own profession, but without regard to the common standard set by the client for the job in question. I have also pointed out that the effect of service installations on the cost of structure and sub-structure—foundations, ducts, access requirements and so on—is often as significant as the cost of the services in themselves.

As regards maintenance and running costs I have indicated the kind of arithmetic which in consultation with the engineers we must do for the client. It is extraordinary, however, how inadequate are the maintenance records available. For example, to try to get information on the life of welded steel pipes buried in concrete I have been in touch, amongst others, with the I.H.V.E., the I.P.W.A., the B.I.S.F. Research Association, the Welded Steel Research Association, the B.R.S., the Chemical Research Laboratories, not to mention individual consultant engineers and specialist firms. Apart from studies of a couple of buildings in which buried pipes were revealed by bombing, there is almost nothing available. Is it not time that a greater research effort was made by the D.S.I.R. into field investigations on the

life of materials in existing buildings, and into maintenance records? I appreciate that there are very considerable difficulties to be overcome in doing this—as the failure of the B.R.S. observer scheme indicates.

I have touched on questions such as thermal insulation, frost precautions, the design of ball valves and sanitary installations, drainage and refuse disposal. I have said very little, on the other hand, on the question of water supply. In this connection I would mention, however, that what are regarded frequently as over-conservative requirements for water storage, and unnecessarily restrictive bye-laws in regard to flushing-valves, overflows and so on, are generally the result of the absurd national situation that Great Britain is desperately short of water. A very good account of the national situation was given in an article in *THE TIMES*, on 24 June 1957, by Professor W. G. V. Balchin, from which I quote the following:

'Consumption figures in England and Wales, in terms of the average number of gallons per head per day consumed—excluding industrial, agricultural or special uses—were:

1938 ..	32 gallons per head
1948 ..	40 gallons per head
1956 ..	46 gallons per head

In Scotland the same tendency is evident.'

These figures reflect the rising standard of living, and in this connection it is worth noting that in the United States averages of 100 gallons per head are common.

Professor Balchin criticises the present set-up of over 1,300 local water undertakings throughout the country and advocates the creation of a permanent national hydrological authority on the lines of the Geological Survey to assess the country's needs and resources, and to formulate regional schemes of control and conservation. Whatever the solution, it is a difficult background against which to press for bye-law relaxations which might in any possible way lead to a wastage of water.

Mr. Eastwick-Field in his paper on finishes has referred to the fact that architects these days must learn to apply scientific knowledge. I should like to endorse this statement, and in this connection to say a word on British Standards and Codes of Practice. So far as the services are concerned, I think it is important that architects should participate fully in the preparation of these codes and specifications, in order that the implications on design and the overall standards of building should not be left entirely to specialist engineers. A number of members have been doing very valuable work in this connection for years, but I am authorised to say by the Chairman of the R.I.B.A. Codes Committee that he would greatly welcome more volunteers for work in connection with B.S.I. Codes.

Now to the slides. I regret they by no means cover all points raised in my paper, but 'the services' is a difficult subject to illustrate, and these slides are all that I have been able to lay hands on. Most of them have some connection with my basic theme,

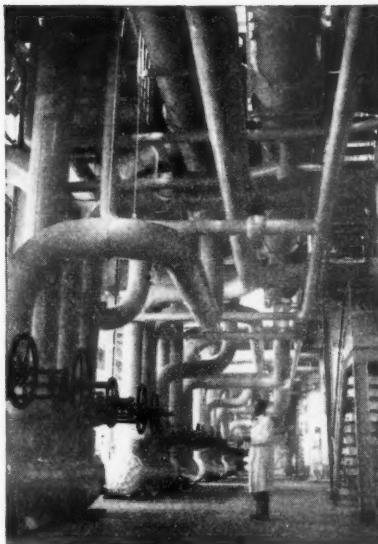


Fig. 1

which is the paramount importance of effective, early, design stage collaboration between architects, structural engineers and works engineers.

In my paper, intentionally, I did not refer to classes of building in which services constitute the great bulk of capital expenditure, and the builder's work provides only a shield or means of support for the pipework and equipment. Such buildings include certain kinds of factories and heavy industrial plant, gas works, power stations and atomic energy stations like this one at Calder Hall (fig. 1). This is not only a wonderful picture in itself, but it shows what mechanical engineers are capable of, if given a real

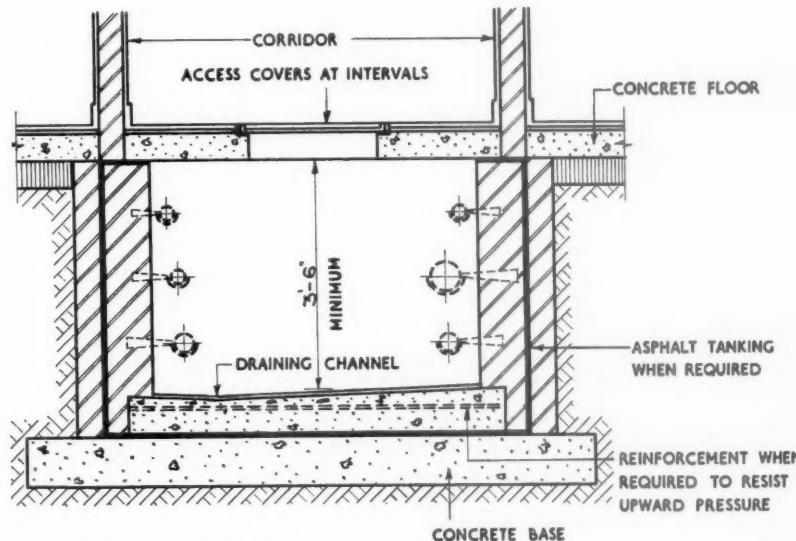
chance. It symbolises the fact, which I discuss in the last section of my paper, that they are part of much wider professions and industries than mere architecture or building. Give any engineer his head and he will turn your school boiler-house into a miniature Calder Hall or provide your housing scheme with a subway that you can drive a tram through.

Fig. 2 is a section of a typical crawlway used to carry heating and other service pipes in schools, offices, hospitals and other buildings. Over and above the cost of site slab and of foundations for the corridor walls, if the duct were not there, the extra builder's work cost for such a duct is about £10 per foot run.

[Mr. Barr then showed photographs of such a duct and a layout of a basement boiler-house and under-corridor crawlways in a typical post-war school.] In a medium size school (about 600 children) the length of crawlway amounted to over 500 ft. run. On the basis of the duct section illustrated the cost would be of the order of £5,000. A re-design of the heating system to obviate the use of such a duct would certainly absorb a part of this money but very substantial savings could still be made. I have referred in my paper to instances of architects having achieved very worthwhile economies in school buildings in this way.

The Hertford County Architect (Mr. Aslin), from the start of the post-war schools programme, has exposed the heating pipes—incidentally gaining a useful amount of heat particularly in corridors—and threaded them through open-web beams, designed and aligned to take them. Fig. 3 shows a typical Hertfordshire classroom service bay. It contains the warm-air re-circulating unit, the internal, top-lit and ventilated w.c.s, wash-basins and classroom sink—an extremely well thought-out and economic arrangement.

In the Ministry of Education model



Illustrated from CP. 413 'Ducts for Services' by kind permission of the B.S.I.

Fig. 2

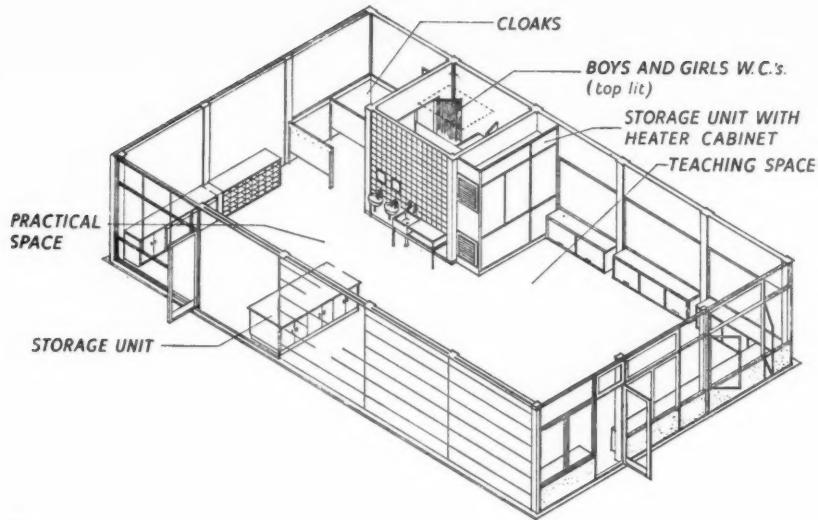


Fig. 3

school at Wokingham the heating pipes are run similarly through open-web beams but covered on the underside, where appropriate, with acoustic ceiling panels. The electric light boxes are fixed to the bottom flanges of the beams—an economic detail which nevertheless required considerable integration with the design of both structure and finishes at an early stage.

In the Ministry prototype school at Amersham the class-room warm-air heating units have been specially designed to fit under work-top benching along the side of the class-room, a good space saving arrangement.

I have mentioned in my paper the pioneer work of Kirkcaldy in regard to off-peak electric floor warming. [Mr. Barr then showed slides of this scheme.] This particular installation is re-wireable and consists of conduit which connects to junction boxes in a small trough with removable covers in the floor at the end of each room. My authority, the L.C.C., is now adopting this method of heating for tall blocks, but we intend to use a more economical wiring system consisting of mineral-insulated, copper sheathed wiring embedded (and not re-wirable) direct in the cement floor screed.

Talking of electric floor warming, I should like to show three slides of a corset factory at Shrewsbury by W. H. Marmorek [F]. The main requirement was for a well daylit area, with a minimum of obstruction, with complete flexibility in the layout of machines. The floor consists of a 6 in. r.c. slab, coated with a waterproof emulsion, and topped with a 3 in. screed in which are laid the electric floor-warming cables. The floor is finished with thermoplastic tiles. Electric cables supplying power to the machines are also run, in conduit, in the floor screed, with junction boxes with removable covers, indicated by tiles of a lighter colour. Continuous fluorescent lighting is suspended from the roof but each machine has also an individual light.

Note the general effect of light and the clean floor space obtained (Fig. 4).

[The next slides illustrated contributions by architects to the design of light fittings.] The original fluorescent fitting designed by B.R.S. six years ago and used at the Rhodes woollen weaving mill, near Huddersfield, was the first fluorescent fitting which directed light both upwards to the ceiling and downwards, with a 45 degrees cut-off

for comfort against glare. By attachment to the roof members themselves it also cut out a forest of suspended wires and supports. It was very cheaply made in the client's works.

A subsequent variation used perspex cut-offs suspended from the tube itself. This is now produced commercially by two firms.

The Percon fitting designed by the Ministry of Education in collaboration with B.R.S. is simple, functional, pleasant and economical. This fitting also directs light up as well as down. The same angle of cut-off is provided as with the fluorescent fittings and the same level of brightness screening against glare. These fittings have had a big influence on subsequent designs commercially produced by the trade, both in establishing design principles and in setting economic price levels.

To return to my theme of the importance, both to economy and to design, of the proper integration of services with structure I am indebted to Felix Samuely, consultant engineer, for illustrations of what he describes as an articulated floor construction (Fig. 5 shows one example). This is essentially a method of hollow floor construction in which the beams, in both directions, may be either of a lattice type or precast solid with holes for services left in predetermined positions.

The significant point I wish to stress here is that this engineer is of the opinion that, given the information on the services at



Fig. 4

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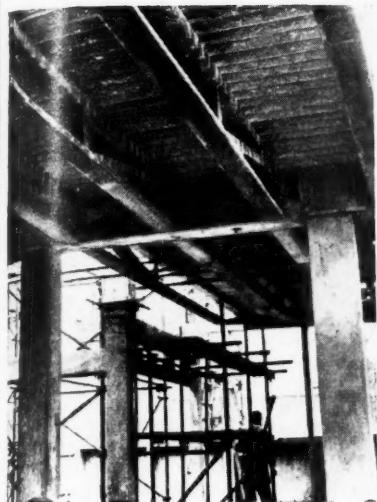


Fig. 5

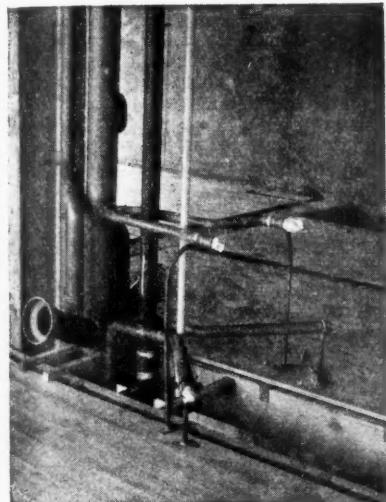


Fig. 7

an early enough stage, no extra structural costs are involved in designing voids within the floor thickness to accommodate the services.

An interesting example of economic planning and of the integration of the vertical services in a housing scheme is the vertical service core, in the thickness of the party wall, in the eleven-storey blocks of maisonettes at the L.C.C. Picton Street scheme (Fig. 6). The structural engineer was Ove Arup. This core, or void, takes all the vertical service pipes—water, gas and sanitary plumbing—plus two sets of extract ducts for the mechanical ventilation

systems of the internal bathrooms and internal clothes drying cabinets respectively. It is bridged by a deep, twin pre-cast beam in the thickness of the party-wall, the junctions of the branch ventilation ducts being pre-cast in with the beam.

The photo (Fig. 7) shows the pipework passing through the beam before the vent ducts and wall linings have been built up.

[Mr. Barr then discussed sanitary plumbing and the application of single stack principles to multi-storey housing. He also showed examples of the design of hygienic and economic sanitary fittings by architects (notably by David Medd of the Ministry

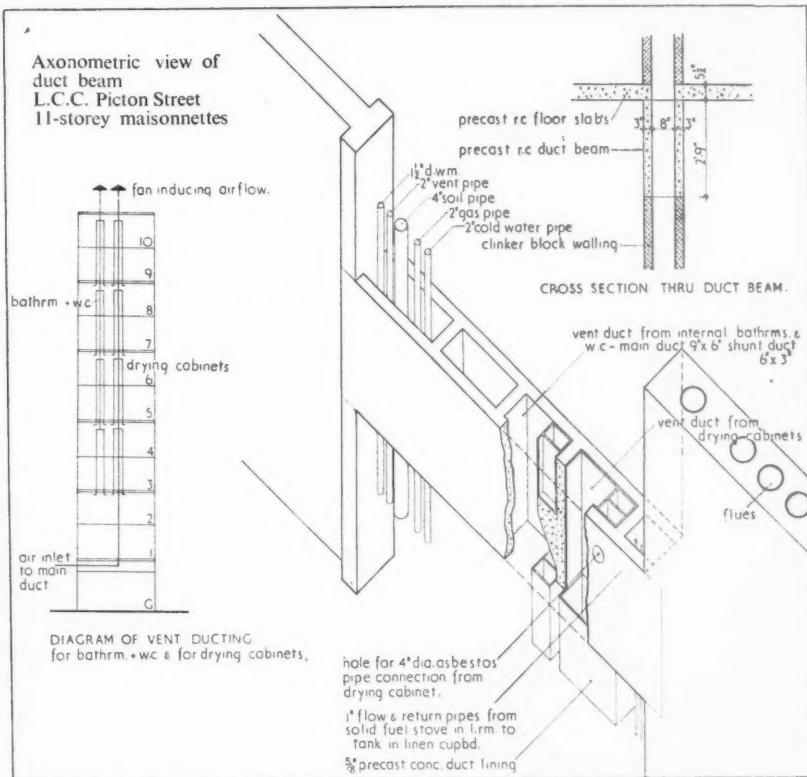
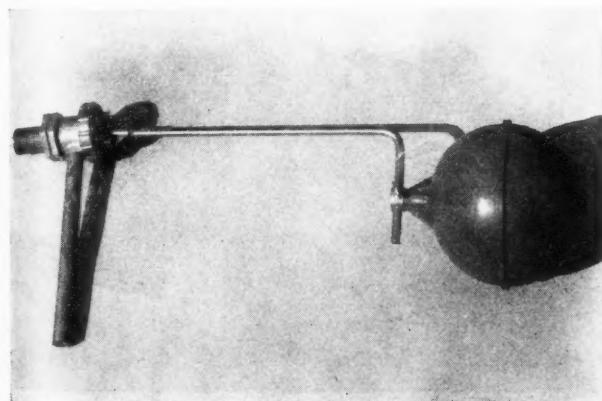
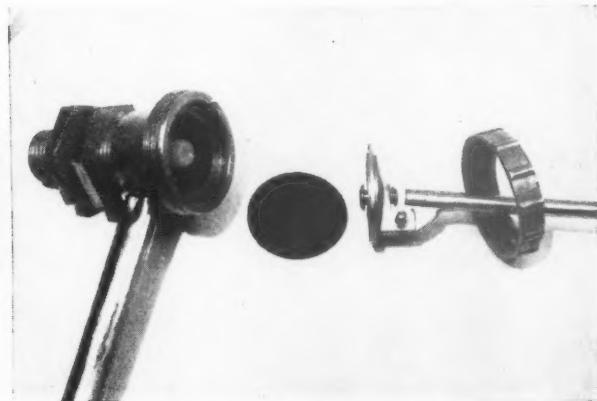


Fig. 6



Figs. 8 and 9



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of Education), and drew attention to examples of classroom wash-basins and sinks, with no traps to the wastes above ground, but with cleaning eyes at the end of the horizontal waste-pipe and an inspection cover over a trap in the floor (as in Fig. 3). This kind of plumbing, he said, could be done all over the country in schools, but in buildings subject to the bye-laws, if for some reason one wished to extend the length of the waste of a wash-basin by a few inches, above the trap, the local sanitary authority was likely to raise furious objection.

He referred to the design of the new B.R.S. ball-valve (Figs. 8 and 9) as the result of a very fine piece of scientific research. The L.C.C. had had a number on trial for over twelve months and were very satisfied indeed with their performance. Apart from scientific shaping to avoid turbulence and wear in the body of the valve, all moving parts were on the dry side of the diaphragm, free from corrosion and extremely simple to replace or adjust, although maintenance in any way was unlikely to be necessary over a period of many years. The valve was now commercially available, and was lighter, quieter and actually cheaper than the British Standard.

Mr. Barr then showed a number of illustrations in colour of the corrosion of metal pipes, particularly aluminium, as a result of the failure of architects and engineers to take adequate steps at the design stage to prevent electrolytic action, corrosion through burying in weak concrete and other causes. He concluded:

I hope as a result of what we have all said about the failure of materials and of design details that this Conference will not come to be known to posterity as the Reactionary Conference. I have attempted to describe in my paper some ways in

which the architect can contribute to economy, both on maintenance and capital account, in regard to the services. As a result of economy in the services we may be able to spend more money on other aspects of design—whether with pitched roofs or flat roofs, and obviously if certain materials and practices continue to fail we must abandon them. But many failures in regard to finishes are due to false economies, and if as a result of savings on the services we can extend our range of contemporary materials and widen our architectural vocabulary—at extra cost possibly for the walls and roofs—we shall, I think, be doing the right thing.

FINISHES

J. C. EASTWICK-FIELD, B.A., [A]

YOU WILL SEE from my paper that I have been interested mainly in the outside of buildings, and in the effect which the choice of materials has on their aesthetic quality as well as on the degree of maintenance that they require to retain a good appearance over the years.

Mr. Barr said that I have slides to show which make an aesthetic appeal. I hope they will live up to that.

The President also suggested that the subjects being discussed at these conferences nowadays are more pedestrian than they used to be. Perhaps, but of course they have nevertheless an influence on the aesthetic quality of our buildings and, as Mr. Mitchell said, we must not forget that this must always be one of our main responsibilities.

The photographs I have to show you do not illustrate all the points I have made in my paper but will I hope at least emphasise some of my hobby-horses, such as rusty ironwork, exposed concrete, dirty render-

ings, varnished wood and the use of brightly coloured glossy materials.

Many of the slides show failures of one kind or another, and I would hasten to add that they are not all of buildings designed by myself or my partners.

The first few serve as a reminder of the rather different situation which faces us today from the traditional one, when, I argue, materials were chosen from a limited range available locally which were probably therefore cheap and also known to last.

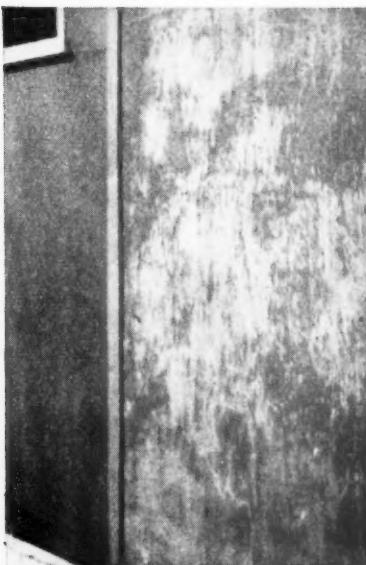
Nowadays reliance is no longer placed on local availability of materials and our knowledge of the great variety of materials at our disposal is less well established.

Even in the past, however, there were at times conscious efforts to break away from customary practice, either for economy or for practical or aesthetic reasons. A typical example was the introduction of stucco to imitate stone, at less initial cost and with effects of considerable grandeur—but also considerable expense in maintenance.

Another example was the great interest shown in the late 19th and early 20th centuries in terracotta and faience, partly for aesthetic reasons and partly, one imagines, to overcome dirt in cities. I think it is fair to question whether glossiness—whether it finds expression in faience or in glass—with or without brilliant colour will necessarily be found aesthetically satisfying by future generations even if it is accepted today.

I have suggested in my paper that the facing materials used in most traditionally built buildings last a very long time (they can hardly be divided neatly into those lasting the 250, 100, 75 and 10 years set out in the Code *Durability* for the life of different kinds of buildings).

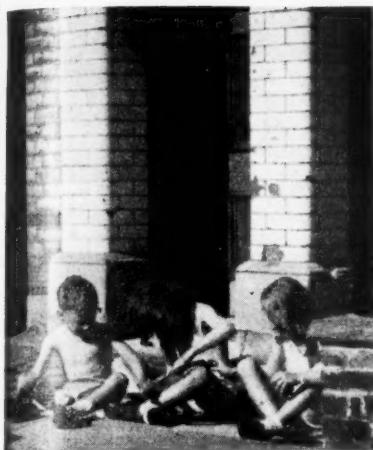
When buildings have in fact fallen into disuse it is likely to have been because they were no longer useful (possibly they lacked



Most clear finishes are relatively short-lived and can look unsightly where they begin to fail



Western Red Cedar and a number of hardwoods can be safely left untreated. They all weather to a silver-grey colour



L: Tiles at entrances are easily cleaned, but they may get chipped and are difficult to replace



R: Apparently derelict properties are readily turned fashionable with little more than a lick of paint

services) and not because the fabric decayed.

When left altogether unmaintained they become shabby but can be quickly revived, largely by a lick of paint, to turn them from slums to much sought after property. This is typical of what is happening in a lot of London buildings.

Even when in the 1930's there were experiments with new techniques and materials—such as is exemplified by the Daily Express Building—these buildings were expensively and robustly built by today's standards, and the materials were unlikely to deteriorate in any specified time; but I am not sure whether this applies altogether to some modern buildings or whether we have any defined policy about their life and the amount of maintenance they require to keep them in order.

Which brings me to the part of my paper dealing in particular with this problem of maintenance.

In the first place maintenance may be required because of the failure of materials to weather well. Sometimes they fail because they are wrongly put together. Sometimes they require maintenance because their appearance deteriorates.

Consider concrete. Even when properly made it becomes dingy in England when exposed in any considerable area. I consider it is all right in narrow widths as in columns and exposed frames, or when given a surface pattern, but we must not be led astray by its good appearance when used in clean atmospheres with strong sunlight as in Corbusier's Unité d'Habitation.

In England concrete has been most successfully used as a facing material when cast in panels with exposed aggregate surfacing. This is a particular contribution made by this country. The units lend themselves to mechanical handling and they appear to weather well.

Now I come to rusty ironwork which is a terrible indictment of us in recent years. To my mind it is an unnecessary maintenance liability because it can be prevented by galvanising at not very great extra initial cost.

Next there is the interesting problem of

breakages of coloured glasses and of clear glass when backed by a sill wall. As you know, if you have read your B.R.S. Digests, the breakages result from stresses set up in the glass when the temperature built up in it becomes excessive. Too many broken sheets are obviously an embarrassment to maintain! It happens that there has been less trouble with wooden framing than with metal framing and quite by chance wood framing was chosen for this building, where I am happy to say there have been no breakages even though the glass is wired, which is thought to be another factor causing breakages.

The next few slides are intended to show that different kinds of user have or ought



The current fashion for using coloured glass as a facing or clear glass with a coloured sill wall at the back often leads to breakages and to expensive maintenance

to have an influence on design and therefore on subsequent maintenance.

For instance in housing estates renderings at low level get scratched and defaced and walls and columns get scribbled on. Entrances are always a difficulty. These at Pimlico look excellent to date but even though the glass in the railings has proved successful one cannot help wondering how long it will be before the entrance screens get broken. I hope they don't, for it seems to me that they are very successful.

So far I hope I have given the impression that a lot of our maintenance problems can be avoided but naturally some maintenance must be expected on all buildings—and must be considered legitimate. The most important, painting, is the greatest single cost, but the amount can obviously vary enormously on different kinds of building. St. George's Hospital costs an average of £1,500 annually to decorate outside. It was built of stucco, probably for cheapness in capital cost, but nowadays maintenance is a burden.

The effect of continuous totally unrelieved brickwork eliminating maintenance is undoubtedly monotonous and would eventually be intolerable.

A time-honoured way of relieving monotony is to paint only certain features, giving what has been called a 'collar and cuff' effect. The maximum freshness is obtained by only a small amount of repainting, and the dirtier the brickwork the better.

If we are not to paint we must try to find materials which do not require attention. For walls self-coloured renderings are a good example. But whilst they may be all right in the country they may not be all right in dirty towns.

Natural untreated wood is another example of a facing material not requiring attention. There is one softwood—Western Red Cedar—and a number of inexpensive hardwoods which are safe without treatment. They all go silver grey. On the other hand, where it is desired to preserve the colour they must have some clear finish applied—usually varnish. This is becoming a popular practice but will involve heavy maintenance since present finishes are



The 'collar and cuff' effect reducing the amount of paint but giving sparkle even in dilapidated properties



A modern version

thought to last only half the time of paint and require stripping off when they break down before refinishing.

Apart from walls we also try to find maintenance-free materials for components such as windows.

Aluminium is much advertised as such—but one must be careful not to accept that without thought. At the Festival Hall it costs £1,000 annually to clean the glass, and also £1,000 to clean the aluminium.

On the other hand hardwood windows—though more expensive initially—might well prove economic in the long run.

An interesting and relatively new idea is to use galvanised steel unpainted, and while I have no example of windows I can show



To know whether to paint exposed concrete is always a problem. It is arguable that exposed frames should be left unpainted to avoid maintenance



White-painted woodwork is delightful but requires maintenance

you some railings in Russell Square which are to be left unpainted. Those in Grosvenor Square are some five years old and are still in a good state of preservation. Curtain walling systems often incorporate self-finished panels. This is obviously desirable since curtain walling is still more expensive initially than traditional building and one must surely avoid excessive painting costs on top.

Lastly, I have made reference in my paper to the washing of buildings, whether it be to clean down glass façades or give a face-lift to stone and brick ones, and I have said that architects should make provision for it. Since it was discovered not to be detrimental to buildings, washing is becoming an accepted maintenance item to be done at intervals of five years.

If, of course, you can afford polished granite at £4 a foot then you can probably extend your washing to twenty-year intervals.

Nature has provided that Portland stone shall be washed naturally by the rain, so that it assumes very beautiful contrasts between the dark and the light areas. A building like Somerset House demands little maintenance and its beauty remains, I think, a challenge to us.



Efforts to use materials requiring little maintenance imply an aesthetic which has never been universally accepted in this country



Wholly white-painted buildings are expensive in upkeep though they may be considered worth while for prestige and it would be a pity if they had to be ruled out on grounds of economy in maintenance

Discussion

Mr. Hubert Bennett [F]: One point has been made very clear in simple terms: that our responsibilities as architects are not confined to the economic cost of a building. From the day we open up the building we are running our clients into expenditure.

Under taxation, Mr. Mitchell points out that this concerns mainly industrial structures. The taxation approach does not affect local authorities at that stage in order that the money saved can be transferred to maintenance programmes in the future.

Those who support, for instance, the retention of the Albert Bridge on the Chelsea Embankment might be interested to know that every time the bridge is painted it costs the L.C.C. some £13,000. We have many such bridges, and the total sum for painting alone, as against the possibility of a prestressed bridge with minimum maintenance, is obviously a considerable item, irrespective of any architectural or historical association, or even

factors of safety. That should be remembered in considering whether that bridge, which has been condemned for 36 years for heavy traffic, is one which should remain for the future.

Dealing broadly with public buildings on which I have been able to obtain information, I should like to give figures averaged in respect of items of greatest expenditure, in repairs or replacements.

If we take a typical public building, costing £130,000, annual maintenance represents about 1 per cent. One-third of that expenditure can be put into general repairs, and two-thirds in renovations and decorations. That is an alarming percentage of expenditure, when we consider our approach to the design of a public building or school. If out of £1,200 spent on a building costing £120,000 or £130,000 we put on one side £800 for painting and renovating, there may be economies which we could make and which I should like to bring to your attention.

Let me give you figures for internal painting for 1955-56. In one local authority in that year we found that the cost per yard super for internal decoration for three-coat work was in the region of 5s. 2½d.

The programme was looked at in a more economic way, and it was found that the painting industry was under-employed in the winter months. One small painting contractor, for example, who employed 40 tradesmen during August, only retained on his pay-sheets ten painters during the winter. They were his best tradesmen, and he kept them together. A contractor who is paying out a wage bill of £100 each week between November and March in order to retain his men and keep his firm together during that time might be encouraged, in everybody's interest, to carry out some of the work then. It is also a public service to assist balanced employment throughout the year.

It is easily understood that you want your internal painting work done in the summer, but unless you pay a high price you cannot hope to attract the best tradesmen. In obtaining tenders for five large contracts from some 75 firms who were prepared to tender between November and March, surprising results were obtained. I must remind you that these are actual tenders based on 1955-56 figures. They ranged from 2s. to 8s. 0½d. per yard super. You may readily appreciate that painting cannot be done at the price of 2s. a yard. The material itself costs more than half of this figure.

But assume again a very good specification, using the very best material. It was possible to average out the cost of various contracts, and the average is not the lowest, at a figure of 3s. 11d. per yard super.

The point I am making is this: if you can stop your education authorities from insisting that buildings must be painted during the recess—and I know you have accommodation difficulties in transferring the overloaded capacity of the building to the assembly hall—you can effect very large savings. One authority was able to reduce expenditure on painting work by some £50,000 per annum.

Many architects have a large number of buildings to maintain, both privately and publicly. Again, it is often, though not always, necessary for the architect to pay the ordinary Federation rates and prices for maintenance work. These prices are based on the rate for the job or the individual contract. If you have a number of properties such as an estate agent has to maintain, you should obtain a preferential rate which shows a substantial saving.

Many of you will know that there are two federations. If you investigate the possibility of maintenance by these people—and I must admit that the figures may not apply all over the country—you may find that there are handsome savings to be obtained by negotiation with a drop in on-costs from 49 to 39 per cent.

Instead of accepting Federation rates for maintenance, it is possible for many of our profession to go into this matter with the local federation in their region in order to find out whether better terms can be secured. As an architect you do a lot of work for the contractor on the maintenance side such as the specification and other matters which the builder does not get from an ordinary client. He may have to make many more journeys privately to satisfy clients, whereas working with an architect he is working on an organised basis. This is one very good reason why terms which are not just the ordinary terms should be secured, if at all possible.

Miss Jocelyn Adburgham [L]: I want to call attention to the roof of the bus station of which we had an illustration. I was astonished that anybody in this relatively enlightened century should expose covering of that character. I believe on the Continent it is the practice to have tanking and keep 9 or 12 in. of water always in tanks on roofs of that type.

My grandfather built a mill in Darwen. He built his mill with a flat roof and it still has the main water reservoir without a lid over it to catch the water and protect the asphalt from the sun. While the weather may be mostly wet, there are days, such as we have experienced recently, when we get blistering. Certainly asphalt blisters.

It seems to me that the architect who is in charge of that bus station must be having many sleepless nights.

Mr. B. A. P. Winton-Lewis [F]: First, I should very much like to congratulate the authors of all four papers. It is incredible how anyone could have got so much into so few printed sheets. I should also like to congratulate them on the excellence of their slides. These slides have brought out some of the points in a way that seems to me to be a challenge and an indictment.

Are we as architects giving the best possible service to our clients, which is—after all—our principal *raison d'être*?

I should like to make one point in regard to a very vital subject. So much of our new building concerns housing and houses of various sorts. Despite the big blocks of flats put up by local authorities and one or two, perhaps, by private enterprise, I

believe there is still a preference on the whole for the small two-storey house with a garden. A great many people prefer a detached house. If they cannot have a detached house, they may have a semi-detached house.

Look at the enormous additional capital expenditure, before you have even started, in land for roads, services, gaps between houses, fences and so on. Everything is a bit longer.

There is another point. When one is filling in a gap or replacing a house or other building—but it falls more heavily on a house—there are immense charges that may have to be paid to the local water authority. I can recall in one case three small houses that were being built by way of development, and the water charge was just under £100 per house—£283 for three small houses of which the capital cost, the prime cost, was about £2,000 odd each, plus water charge. It seems unduly high.

Mr. John Wade [F]: Before I speak about these interesting papers, I should like to bring greetings from the Council and members of the R.A.I.C. to you, Mr. President, and to your membership as a whole, more particularly from my own Institute in British Columbia. I should like to say how much it was appreciated that your President and Mr. Spragg were able to visit us. I saw them myself at Vancouver and I feel very privileged to be here today to see you all.

I should like to endorse from my own experience as a builder almost entirely in wood, as far as domestic work is concerned, the comments of Mr. Eastwick-Field regarding the varnishing of woodwork. I am startled to see you use our native material so freely and loosely. Wood is a material fraught with difficulty, and we ourselves wish we could use the material so readily available to you.

May I ask you all never to varnish any exterior woodwork; the cost to our clients is far beyond the hopeful estimate of Mr. Eastwick-Field. There are readily available in Canada—I do not know whether there are here—various plant stains or better still creosote stains for exposed work. Western Red Cedar has great durability, porosity and other attractive attributes which will make it acceptable over here.

I was surprised not to see mention—but I must confess I have not been reading my JOURNAL conscientiously—of the use of lift slab. I presume it is in use. In certain circumstances, it has shown great economy with concrete buildings.

The President: Thank you very much for what you have said. We extend a very hearty welcome for you to take back.

Mr. J. Godfrey-Gilbert [A]: I was most interested in the slides, especially those showing various treatments of roof surface. I should like to make a remark about some of them. I have just returned from the Dutch Conference in Rotterdam and there I attended a meeting conducted over the

new Bijenkorf building. I was most interested to see that the roof of this new building, which cost some £2 million to erect, is finished with three-ply bitumastic felt, on top of which pebbles have been placed. They look as though they have come from Brighton beach. The pebbles were there for three purposes. The first was to keep the bitumastic felt down. The second was to protect the felt so that the roof could be used as a terrace. The third and most important was to help to insulate the roof and to allow the rain to percolate through the tiny gaps.

The top of the coping was 15 in. above the height of the flat roof. The felt was turned up but not tucked into the parapet wall, and a zinc flashing was brought through under the coping and over the top of the felt, so that the vermiculite screed could dry out, if necessary, through the edge of the turned up felt.

Mr. Thomas Rayson [F]: One of the most pertinent things today is that local character has disappeared and that buildings tend to be the same, wherever they appear, whether in one country or another or in one part of this country or another. I should like to put in a plea for the preservation of local character in this country to which we have heard no reference as yet.

These forms of construction would scarcely apply to small buildings, masses of which have yet to be done in connection with our old villages and towns which have their own heritage. The Cotswolds is a case in point. If buildings have to be built within the areas of these villages they should honour the character of the district. The same character will not do for the Cotswolds as for, say, East Anglia or Berkshire or Luton. They are quite different.

Mr. Leon Brown, A.I.A. (Washington, D.C.): I should like to thank you for permitting me to attend this Conference and I bring you greetings from the United States.

It has been a privilege to hear the papers, and I should like to make three comments. First, I did not hear any mention of the electrolysis process with aluminium which we are using so much in our multi-storey buildings in Pittsburgh and New York. Secondly, would this not lead to a saving in the cost of maintenance? Thirdly, I did not hear any mention of porcelain enamel.

Mr. J. C. Eastwick-Field [A]: in reply: I have been asked to comment on the remarks of the last speaker. He referred to a treatment of aluminium and I suppose what he meant is what we call anodising. Is that correct?

Mr. Leon Brown: That is correct.

Mr. Eastwick-Field: I think I made mention of it in the written paper; but so far as I am aware it is not used much, although I know it is used a lot abroad. I was told there was no evidence for its durability and it does not outside, so far as I know, remain satisfactory in this country. But

perhaps there are other processes we do not know of.

Porcelain enamel I take to mean vitreous enamel. The only danger is that it might be mechanically damaged. As I have said in my paper, there are advertisement signs which are in excellent condition after 50 years. I would say that this material is well worth trying as an experiment.

Mr. H. Overnell [F]: In Germany before the war I saw a large number of factories in the country rather than in towns with flat roofs covered with turf. I presume that with dryness in the summer they probably had to be seeded each year. I have seen the grass quite high, almost like a hayfield.

Mr. Thomas Mitchell [A]: in reply: Lift slab construction has not come to this country yet. Whether it will or not, I do not know. Here there is not the same economic pressure to make preparations for winter building as in Canada. I think it has comparatively limited flexibility, and the dimensions are very limited indeed.

Mr. Lesslie K. Watson [F]: Cambridge University Library was built about 25 years ago, and it had the first windows made in aluminium, not painted but anodised. I saw them about 13 years ago and they were as good as when they were put up. So we do know in this country how to use anodised aluminium externally. The colour is exactly the same as aluminium. It has a polished finish which is perfectly satisfactory.

The rubber flooring, on the contrary, 25 years later was absolutely worn out. It was the best quality rubber in those days, but it cracked like parchment. That is something to bear in mind if you are thinking of using rubber flooring material.

Mr. Mitchell: Another very early building is the telephone exchange and post office in Gerrard Street. A certain amount of pitting has occurred on the aluminium windows which were not anodised. The glazing bars are cleaned fortuitously by the window cleaners.

An early example of anodising was the London Electricity Authority's showroom in Regent Street, where the anodising failed on the shop window, which has now been painted with metallic paint.

Mr. Matthys Tauté [A]: All of us here feel the hair shirts we have been asked to wear quite voluntarily, but surely we as architects have partners in crime. I should like to know whether we may have some assurance from the President or the Committee that we may pass on the hair shirts after we have finished with the Conference to our colleagues the manufacturers and the builders. Let them feel the itch as we are beginning to feel it!

Mr. J. Edward Tyrrell [F]: I should like to refer to the first paper dealing with finance.

I think it is an established fact that modern legislation encourages, through taxation, the acceptance of high main-

tenance costs as opposed to higher capital costs and the keeping down of maintenance costs.

I do not know whether the Conference has authority to pass resolutions, but if it has I should like to see a resolution from the Conference asking for the reversal of that principle and for the encouragement of higher capital costs, where it can be proved that that would result in lower maintenance costs.

Mr. Mitchell, in reply: Successive Chancellors of the Exchequer have been pressed by various bodies to give higher initial allowances on all types of building and have given serious consideration to this. But the mere granting of such allowances would not solve the problem. I do not think anyone in this assembly would be likely to influence the Chancellor of the Exchequer, but if he could our object would be achieved more effectively by withdrawing allowances for maintenance. However, that would be impracticable.

The answer must lie in the education of our clients—propaganda, if you like—by ourselves. I do not think there is any other practical solution.

DISCUSSION—SECOND DAY

The President: It is suggested that for our discussion this morning we should divide the programme into four parts, the first dealing with finishes, the second with services, the third with structures and the fourth with finance. Perhaps Mr. Eastwick-Field would open the first part.

Mr. J. C. Eastwick-Field [A]: I should like to question current modes of expression in architecture and to suggest that occasionally we may be mesmerised. That is not reactionary: it is a matter of being responsible. I think we ought to have a much clearer idea than we often have of what we are treating our clients to.

The first point is how to reduce the cost of curtain walling. You all seem to want to use it, but it is very expensive. You ought to consider the implications of cleaning it, because one often has glazed panels in conjunction with it, and contrary to popular belief they are not self-cleansing. Only recently reference was made in one magazine to the self-cleansing properties of glass panels, and in the same week in another magazine there was an announcement that they were anything but self-cleansing. That is a point we have to decide.

Another point is why have so many buildings been erected which are subject to failure that we have not discovered in advance? What evidence is there of new and better maintenance for internal finishes? How can we design buildings at low cost without paint which still look good? What effect has the human element—the kind of client we have—on the choice of materials, window cleaning, and so on? This is all very pedestrian, but it is of importance. What can we expect from our clients in terms of the maintenance which may be expected in the building?

Mr. W. A. Allen [A]: It seems to me to be very important to realise this morning that the extent to which we measure up to the challenge to hold a successful discussion on how our buildings behave is a measure of the success which we as a profession are having in studying our own competence.

Do we really appreciate, deep down, that knowledge of how our buildings work out is one of the foundations on which we must establish our habits of design and construction for the future if we are to do our work responsibly? Should not we as a profession consciously study these things, collecting carefully the vital statistics and data that are necessary. The local authorities and the Ministries are the people who ought to be leading in this kind of activity.

But it is not a question merely of collecting this information for oneself—it should be done for the profession, and built into it as part of our working knowledge. In this day and age there is only one way of dealing with knowledge—to record it. This is absolutely vital.

It seems to me that we ought to adopt the practice of recording in our JOURNAL the experience we accumulate as a profession. Otherwise we tend to start from the ground each time instead of getting on one another's shoulders to raise the general standard of work.

Turning from generalisation to detail, I should like to say something about finishes and paintwork. Mr. Eastwick-Field spoke of avoiding painting to some extent, and of course it can be avoided by other finishes. But when we do use it we ought to understand how to prolong its useful life. There are two reasons, I suppose, why we repaint. One is because of decay, and the other is because it gets drab. Nobody has mentioned pattern staining. Yet to the best of my knowledge, one of the principal causes of drabness and redecoration is pattern staining. We must begin by recognising that behind the surface of the structure we must seek uniform thermal conditions if we are to avoid pattern staining. They must be consistent, or the pattern of difference will show through quickly and look shabby. And the higher the standard of insulation, the cleaner the surfaces will keep. Such things sharply affect frequency of redecoration, and therefore affect costs.

Another thing. We often specify sharp arises these days. Do we realise that the paint is bound to be thin over a sharp edge? Paint films depend to a large extent on their thickness for their durability, and often begin to peel from an arris. We did a little arithmetic not long ago at the Building Research Station. It is perhaps a little shaky because there is not yet very much data; but on the assumption that we changed over from sharp arises to pencil-rounds, on existing and new work, one might conceivably extend the durability of paintwork as much as a year on average between repaintings, and if such a result were possible, it might apparently represent a saving of the order of as much as £5 million per annum. It is a reflection of what we

heard yesterday about paintwork in buildings being a heavy charge upon the country.

One last point, about the cleaning of curtain walls. We have often admired newly-cleaned buildings and talked about making permanent provision for cleaning them. But how many people have seriously tried to make provision as yet for cleaning, maintaining and repairing curtain walls? It seems to me one of those things one cannot even argue about. I have heard recently that in some curtain walls in America—I have not heard of it in this country—the screws in screw-assembled curtain walls have been found to be wind-loose, and have even come apart high up on buildings. This just exemplifies the kind of unexpected thing we should provide for when we go for something new like this.

Mr. D. W. Sharpe [A]: Mr. Allen says the local authorities should experiment and give the R.I.B.A. or architects generally the benefit of their experimentation. Obviously, Mr. Womersley for one has done so, and I hope our experience in Worcestershire may be of some value.

I want specifically to talk about anodising. It has been mentioned as a possible protection for aluminium cladding by the delegate from British Columbia, and possibly for windows, reducing the oxidation of the surface and giving some protection, and also decoration. So far as concerns aluminium window sections and structural aluminium members of cladding this scarcely seems necessary, except in badly polluted atmospheres. There is strong evidence that the surface oxidation which affects the metal to a very shallow depth practically ceases when the initial process is complete, and unless this is cleaned off the aluminium appears to receive adequate protection from it. There is, in fact, in the new Inorganic Chemistry Laboratory put up by Lanchester and Lodge a case where they have taken the same view. They are untreated aluminium windows which look very well and in Oxford I imagine they will stand up well. That has been our experience in Worcestershire, where the atmosphere is not badly polluted.

If, therefore, the gray and rather drab appearance is aesthetically acceptable, there seems little to be gained by anodising or painting the more solid aluminium sections in windows and the like in a reasonably uncontaminated atmosphere. This cannot be taken as applying to industrial and large urban areas where pollution is present and where acids are precipitated from the smoke and industrial fumes.

The case for aluminium panels is, however, rather different. In the first place, we could scarcely accept even the slight penetration of oxidation. In the second place, the unrelieved monotony of the large gray panelled surfaces could rarely be accepted. They would look pretty awful!

We carried out some tests in colour anodising for such cladding panels in conjunction with the Aluminium Development Association and the British Alu-

minum Company three or four years ago, with a result that seemed satisfactory. We therefore used such anodised panels fairly extensively on a school in the county. The colour was quite pleasing. There were no strong colours, of course, but the effect seemed very good. Unfortunately, although the anodising seems to have had the desired effect in giving satisfactory surface protection, the same cannot be said for the permanency of the colour itself. It has, after less than three years, gone almost completely, although we have not quite reached the usual drab surface. It may be that the lack of colour permanence externally can be overcome but as things stand at present anodising can only be accepted as a temporary measure and if it is temporary it is much too expensive.

Our findings, briefly, are that it gives external protection but it does not give external colour permanence; and I should like to know whether anyone else has had similar experience or has tried out anything different.

Mr. Thomas Mitchell [A]: in reply: Yesterday I called attention—and this is an excellent example of the lack of interchange of information in the profession—to what is probably the earliest use externally of anodised aluminium in this country in a shop front in Lower Regent Street, carried out, as far as my memory goes, in 1936 or 1937.

It seems rather a pity that each member of the profession should have to go through the same experience in order to learn the same lesson.

Mr. N. Seton Morris [F]: First of all, I should like to refer to aluminium windows. The library in another place was mentioned. The library here by Sir Giles Gilbert Scott had aluminium windows before the war, and they are here for everybody to see today.

With reference to the aluminium windows of the Inorganic Chemistry Laboratory, it is not a policy of the architect but a policy of the University in the building for which they and not the College are responsible that there shall be aluminium windows. It has been found that maintenance costs for the painting—for instance of the Bodleian Library are at least £1,000 every time; and a saving was quickly made, over a comparatively short period of years. The cost of the aluminium windows of the Bodleian Library has, I think, paid for itself already.

We have been fortunate in having experience in this University town of some 25 years' building. We have had some ten buildings in the science area, and they are available for members to see. We have had various experiences with finishes and different types of roof and the finishes of flat roofs and we feel the University are satisfied with them.

On one or two occasions a roof has had to be taken off not because of the initial covering but because of the insulation material underneath—not always asphalt. Various types of insulating material from cork to lightweight concrete vermiculite have sometimes proved unsatisfactory.

If members wish to see how the problems have been solved in some ten buildings within a range of a quarter of a mile of one another by the same firm this afternoon they are or could be made available, I think. They are nearly all laboratory buildings and in dealing with services over the years we have come right down to the use of polythene and so on.

Mr. Cleeve Barr [A]: One of the aluminium interests with whom I went into this matter fairly fully told me that anodising in this country is done with organic dyes, whereas in America there are processes using inorganic dyes. In Pittsburg and other cities there are buildings faced with anodised aluminium sheets, which have proved perfectly satisfactory and fadeproof after fifteen years. I understand these processes are only just reaching this country.

As regards vitreous enamel I have built a 'mock-up' faced entirely with vitreous enamel sheets, which after a year or so showed considerable streaking of rust from the edges of the panels. Vitreous enamel panels, I am sure, require special edge treatment. This is the same point as Mr. Allen made about protecting sharp arrises. With materials of this kind satisfactory performance depends very much on ensuring a high standard of specification and this is a matter of cost. One is so often under the obligation to cut costs that there is a danger of prejudicing the uses of new materials by sub-standard specification.

Mr. G. D. Nash [A]: May I draw attention to the following part in Mr. Eastwick-Field's paper that touches the essence of some of the things under discussion:—

'... it is no longer always possible nor desirable to use only those materials which from long experience are known to satisfy, but if new ones are to be used the risk of failure must be reduced as far as possible. To do this we must accustom ourselves to new criteria for judging them, and learn to apply what scientific knowledge there is of them.'

Although we need not follow the civil servant who found difficulties in every solution, we should at least look at constructions critically, particularly when dealing with new materials.

The old reference to the virtue of 'the wall that can breathe' is a point to remember in relation to finishes. Various materials and the way they are used in construction, provide surfaces which are impermeable to moisture, as, for example, the asphalt and felt-covered roofs. In addition, they are frequently on the cold side of the structure and moisture vapour from inside may condense within the construction.

A point mentioned yesterday—the venting of the edges of a flat roof—was an attempt to allow the insulating screed underneath 'to breathe', so that moisture might escape. Similarly, Mr. Barr said that with curtain walling it is probably necessary to provide for ventilation behind an impervious external cladding.

We should therefore examine critically the details of construction. This may be

partly the manufacturers' job in developing the material and suggesting suitable construction details. But architects also have a responsibility in using basic knowledge of construction, in getting the best results from available materials, and in developing new forms of construction. Unless we can get that combination of new materials and appropriate forms of construction, we shall not—unless we are very lucky—obtain completely satisfactory results in the performance of our structures.

Mr. J. Godfrey-Gilbert [A]: I should like to add one short sentence to what Mr. Nash said about finishes, especially in connection with what was said yesterday about the roof I saw in Rotterdam.

Many of my colleagues have had failures in this country with flat roofs, using various screeds such as foam slag, vermiculite and so on covered with asphalt and other roof surfaces, and they have found it necessary to introduce a paravane or other methods of trying to dry out the roof after certain stainings had been found underneath. These have caused great consternation to my colleagues, and they have been having the same trouble in Holland.

I therefore took it upon myself to do a little research, and I found that in America they do not have this trouble. I have made a short note which I should like to read. When using vermiculite, the American technique for laying roofing felt on vermiculite screeds is as follows:

The roofing felt can be laid as soon as the vermiculite screed has been placed, and the surface is dry. A sand-cement topping, I find, is not used. With three-ply the first ply is nailed to the vermiculite screed; with five-ply the first and second plies are rolled out and nailed at the same time. A special type of galvanised nail, a kind of split nail, is used. It is driven through metal caps to prevent tearing and it clinches in the concrete when struck with the last blow of the hammer, so that it splits and prevents itself coming out. The remaining plies are 'swodged' out in the normal manner and the whole is carried up the side of the parapet wall to a point where zinc or copper or lead flashings can overlap. A gap is left between the felt and the wall.

That is the important point. A gap is left round the edge of the parapet to allow the roof to breathe. The roofing felt edge is covered by the flashing but the latter should only be nailed at sufficient intervals to secure the felt and not in such a manner as to prevent any vapour which might arise from the screed from escaping.

The objects of this method are (*a*) to cut down to a minimum the waiting time before the laying of the roof felt, and (*b*) to provide a means of escape for the moisture in the vermiculite screed. It has been found that no staining occurs under the soffit of the roof if this method is carried out.

The President: The time has come to proceed to the next item, services.

Mr. Cleeve Barr [A]: At the study group which met yesterday, few points were raised

about the services. Electric floor heating was referred to. Undoubtedly for an equivalent heat output electric space heating of any kind is probably more expensive than most other forms of heating. But electric floor heating has a very low capital cost. It has the advantage of being easy to install with few complications for builders' work. It is very responsive and flexible as a system and offers good comfort conditions. It has been readily adopted for housing for these reasons, and because in this country we are not used to housing to full central heating. As I showed in my paper electric floor heating can provide an economical alternative to the open fire standard for intermittent heating.

Someone mentioned the difficulty of trying to get electric floor heating through the Ministry of Education for schools. I do not know whether the policy is likely to change there. It would be interesting to know if Mr. Marmorek, whose corset factory at Shrewsbury I showed on the slides yesterday, has any data on the cost of heating this factory by electric floor warming as compared with other methods.

As to burying cables in floor screeds I take the view that given good workmanship, and the precautions outlined in my paper, electric floor heating, using copper-sheathed mineral-insulated cable, with no joints in the screed, should be virtually maintenance free.

Water-storage was also discussed and the use of flushing-valves. This is an item on which we should all like to economise. When I started on housing work seven years ago at the L.C.C., we were providing only 30 gallons storage per house. The figure was soon increased to 50 gallons, and now the Metropolitan Water Board requirement is 80 gallons per house. This means an enormous storage tank for a small house.

I should like to invite further discussion also on the question of lifts. I referred in my paper to the problem of making the maximum economic use of lifts, because they are so expensive in capital cost. I wonder whether our lifts are not of too high a standard. On the Continent one sees lifts with only one door operated successfully by small children, without also the elaborate mechanical devices for self-levering and other purposes that we have here. Undoubtedly British engineers have developed first-class lifts. Are we, however, spending too much on them in relation to the general standard of building, particularly housing?

Finally, I should like to draw attention to the particular importance of workmanship in connection with the services. Plumbing, heating and electrical work are regarded as specialist jobs and too often the clerk of works, because of his trade training, is more interested in carpenter's work or bricklaying. If pipes are left open, grit or cement or lime may get in and problems of all kinds can develop. If heating pipes or radiators are laid on clay soils, various corrosive actions may subsequently take place. In the first years of a building many of the troubles in connection

with the services arise from faults of this kind. We should do much more on our sites to ensure good workmanship and better supervision of specialist work.

Mr. G. D. Nash [A]: Electric floor heating is a very interesting current problem. No single and simple answer can be given for domestic heating to satisfy all cases. The general policy of the Ministry of Fuel and Power in post-war years has been that the bulk of the domestic heating load should be taken by solid fuel. This is based on the fact that the conversion of coal to heat in solid fuel burning appliances is achieved with higher efficiency than the conversion of coal to electricity. But that is not the only factor to be taken into account. It is a matter for judgment whether atomic power stations are likely to be a predominant factor in the supply of electricity and whether in our new buildings we shall be able to have a plentiful supply at a cheap rate in the near future. Any figures I have seen tend to show that the cost of the electricity from atomic stations is likely to be of the same order as the cost of electricity from the present power stations. However, the position could change: it depends on development and on the future cost of coal.

A factor that may influence the choice of heating system for domestic premises is the extent to which people go out during the day; in flats, they may want an extremely flexible system which can be switched on and off according to the time of occupation. This raises the problem of condensation troubles due to lack of heat in the structure as a whole.

Members of B.R.S. staff have been to flats at Kirkcaldy and elsewhere to collect temperature and fuel consumption data from different flat-heating schemes. One of my colleagues recently presented a paper to the Institution of Heating and Ventilating Engineers on 'Some design considerations of floor heating'. From the collection and analysis of data it should be possible to present information to the building designer on which he can base his judgment in selecting a heating system.

The Station obtained information on school heating systems at Abbots Langley in co-operation with Mr. Aslin, by a carefully designed experiment which took three years. As a result, the publication of the Ministry of Education Bulletin on school heating was possible.

Mr. A. L. Townsend: I am truly concerned by the growing tendency to decrease building costs, particularly in domestic buildings, by over-simplification or, indeed, in some cases by the omission of certain functional fittings. I refer to the single-stack system of above-ground soil and dust disposal installations. This is in theory rather attractive. In practice, if installed correctly and used intelligently, they may be safe. But is every architect, builder or operative completely *au fait* with the exacting design data and the meticulous care needed if a truly sanitary service is to be provided?

I would refer to the temptation to omit traps from bathroom and culinary wastes.

These bits of bent pipe are not the result of trying to shorten the pipe. They are there to enable the water to act as a barrier against the offensive smell menace within the waste pipes. In anticipation of a reply, may I suggest that the provision of a master-trap to collect several untrapped wastes gives rise to a sense of false security. The master-trap cannot intercept the passage into the building of foul air from the untrapped lengths of waste.

Our sanitary and water undertaking bye-laws do seem frustrating sometimes and even illogical. But we must remember that these bye-laws have been prepared by committees of experienced sanitary engineers, public health officers and architects with two objects in view—the conservation of a useful commodity, water, and the protection of the public health. These bye-laws are important instruments in the field of preventive medicine, and should be understood and accepted as such.

Mr. Hilton Wright [A]: Before we get sidetracked, could I make a few comments on the last section of Mr. Barr's paper, which seemed to me, without disrespect to the rest of the paper, to be the real meat of what he had to say. I refer to architect and engineer collaboration.

I speak as a private architect with rather a small practice and therefore one who has not the advantage of those of you who are in public offices and have consultants ready to hand, or those of you with very large offices who tell us that they have their own consultants working in the room next door.

How are those of us who are in this perhaps unhappy position to improve the standards of services and reduce the cost of services in the buildings we design? You will appreciate that with the majority of medium-sized buildings the client is not prepared at an early stage to agree to the employment of a long list of consultants. When he knows the probable cost of his building and is sure that all the other obstacles in the way have been surmounted, perhaps he will agree to let you appoint a consulting services engineer.

It seems to me that collaboration between architect and services engineer at an earlier stage is as essential as collaboration with the structural engineer. I am putting that as a question. I have no solution. I have one suggestion that rather follows from what Mr. Cleeve Barr said: that we do need a better education. I wonder whether the R.I.B.A. could do something—could arrange, not at uneven intervals but at regular intervals, some form of interchange of information between the services consultants and architects. I include the specialised engineering firms who, I believe, actually design and carry out the bulk of the services work in this country.

If those people could meet us and tell us of new developments and of their experience, and possibly explain particular buildings which contain features of particular interest, it would help the private architect in particular to get a little nearer to hearing about new methods before it is too late.

My other suggestion implies even more work for the R.I.B.A. Possibly a scheme of post-graduate courses on the services could be run for architects, or perhaps the R.I.B.A. could delegate this to one of the schools in London and to other schools throughout the country. We could then brush up our knowledge and at the same time be told by specialists in various fields about new developments.

Mr. W. A. Allen [A]: The last speaker but one made an attack on single-stack plumbing, claiming that experience justified previous conservatism. I do not know a great deal about single-stack plumbing, but I should like to say this about accumulated experience and about research. Experience is valuable, but it is not knowledge in the accurate sense made possible by research. By itself it tends therefore towards a degree of conservatism that is often wasteful without necessarily being safe in new circumstances. Single-stack plumbing is based both upon experience and research.

People have hinted at times during this Conference, as at other conferences, that the B.R.S. ought to be more forthcoming, less cautious and so on. (*Hear! Hear!*) The applause is noted. Well, here is a case where the B.R.S. has gone forward, and now we are told we should not do so, that we are taking risks with the public health. I want to assure you that we try to drive as reasonable a course as we can between being over-safe and under-safe, and to give a lead where we feel we have a right to do so.

Mr. J. E. K. Harrison [F]: I should like to say a few words about the earlier part of Mr. Cleeve Barr's paper, where he asks whether we are spending too much on services. May we not consider taking the risk of having to spend money occasionally to put things right when failure occurs?

It does seem to me that in this country, particularly with regard to special water services, drainage and so on, we do tend to pay a high premium sometimes to ensure against very remote risks. We are always doing this, particularly with drainage.

Mr. Cleeve Barr mentioned water storage. The amount of storage required for schools per child has gone up enormously since before the war. The increase may be based on actual experience of occasional failures to get sufficient water for a particular school in a particular area. But there is a great tendency with statutory authorities, having tremendous powers, to issue their own bye-laws—to say after a failure, 'All right, we will decide from now on that we shall require such and such', and, as it were through a stroke of the pen, to insist that a large area in the future shall spend millions of pounds more because of an unfortunate experience in one particular case.

Mr. Cleeve Barr mentioned lifts. I would put in a plea here. Many may look askance at this, but we do go too far in our electrical regulations in taking extreme precautions that in some cases can only be designed to protect those absolutely intent on suicide.

If I may give one instance with new lifts

only a few years ago, there was a device whereby with a removable floor in the lift car a person stepping into the lift and actually standing on the floor would by contacts made have complete control of the car whilst he was in it and make it impossible for anyone else to operate the car. This it was decided to abandon, substituting a far more costly system of control. I asked why, and I was told it would be very dangerous to actuate that. It would be possible for someone in the lift to put his hands through the inner gate and grasp hold of the outer gate, lifting his feet from the floor. Someone could press a button and he might break his arm. (*Applause.*)

I am not going to suggest more work for the Institute, but surely we could get together with the authorities dealing with these various matters and try to assess what is a reasonable risk to take in some of these cases in an effort to stop these rising costs over which we, as architects, have no control whatsoever.

Mr. E. L. Bird [A]: I want to refer first to Mr. Hilton Wright's remarks about information with which I am in whole-hearted agreement.

Members may know that exactly a year ago I went to the Building Centre to do something about an information service for the building industry and for architects in the industry. I told my committee it would take two years even to decide what to do.

Some months ago I spoke on information at a course run by the York Institute of Architectural Study on architectural project management. There were about thirty students, mostly junior partners from large architectural offices, with a few officials. It struck me that the course was admirable, and though it was on architectural project management it could easily have been on services, finances, and so on. It lasted four or five days and I think this is a method that might be used much more extensively in the profession, by the R.I.B.A. or by Schools of Architecture or Allied Societies.

I know the course was good because in the evening I was, strange to say, with most of the students in a bar; and it is in a bar that you get the 'moment of truth'. After about the third round, I asked, 'What do you chaps think of this course?' and they replied that it was absolutely first-class. We could do a great deal more of that kind of thing, because running any sort of information service is outside the power certainly of one man like myself.

I should like to refer to lifts. Ten years ago I was in Sweden and saw several lift installations in point blocks of flats which were one-door lifts. There was a completely flush door, side-hung which swung open and automatically locked. It was flush with the inside face of the lift wall and the floor edge, and the space between the door head and the floor edge was lined with marble, which is a cheap material in Sweden. The car itself fitted tight within $\frac{1}{2}$ in. to the face of the well, and I deliberately leaned against it as the lift was going up, on several occasions, to see if I could possibly catch my clothes or anything else in it. But I could

not, and it worked admirably. As Mr. Cleeve Barr said, children used the lift with confidence and safety. It was a simple, fool-proof, inexpensive system. Admittedly, it worked at about 100 ft. a minute, which is slow; but this is of no great moment in a point block of flats. It is quite different from the high-speed lifts of the R.I.B.A. building which do about 450 ft. a minute. If the Swedes could have these lifts ten years ago, surely we could obtain from them the accident statistics, if any, and could have something much more simple and fool-proof, as the last speaker suggested.

Mr. Mitchell: For many years I have admired the simplicity and perfection of workmanship of the Schindler lifts made in Switzerland.

Mr. Cleeve Barr: I do respect Mr. Townsend's points on plumbing. Between his point of view, which I regard as excessively conservative, and those of the *avant-garde* we shall arrive at the right compromise. I do not know to what extent untrapped lengths of wastes in schools have become offensive. I did mention in my paper the need for more field research. This is something on which the Ministry of Education and the B.R.S. should check up on in practice. Counties like Hertfordshire, which have pursued the economical practices outlined in my paper in regard to plumbing and drainage, have made not small but considerable economies, and have built more schools as a result.

I agree that single-stack plumbing is still in the development stage and there have been snags in practice. It has been asked whether architects must be *au fait* with scientific information. I think they must. It is one of the lessons of this Conference that architects have to be much more able to apply scientific information of this kind to building problems. The B.R.S. are always available when there is need of real scientific advice and from the published literature at the moment architects can go forward fairly safely with single-stack plumbing installations.

One thing architects can do to save water is to use a spray valve instead of the ordinary tap. This has been developed for schools by the Ministry of Education and saves many gallons per head per day.

On Mr. Harrison's point regarding lifts, when I asked a similar question I was told that a simple push-button stop operated from inside the lift was impracticable because courtship couples, using the lift, could immobilise it from use by anybody else. Consequently, elaborate systems had to be substituted. (*Cries of 'Shame!'*)

With regard to the work of the Royal Institute and of the Building Centre which has been referred to, my own view is that the R.I.B.A. were crazy to let Mr. Bird go to the Building Centre. They should have retained him and organised a technical information service themselves.

The President: We now come to structures.

Mr. J. L. Womersley [F]: I should like

strongly to endorse the view that we should consider this Conference not as one of reaction but essentially as one of re-appraisal or reassessment. All the speakers are essentially looking forward, not backward, and all are concerned to avoid a reaction from our clients in the years to come. I hope we shall all remember the words we heard from the Vice-Chancellor of Reading University last night: 'Please do not ignore the advice of the amateurs.'

I recently heard an almost identical appeal from the head of another university farther north. It is clear some of the things now being done are causing serious concern, and we shall be irresponsible indeed if we do not listen attentively to intelligent educated lay opinion. That is far from saying we should not stand firmly convinced where we are right. The point is that we must be pretty certain that we are right. This was intended to be the essential theme underlying my paper.

I do not think I need say much about the detail of the paper. I understand there is to be a contribution about erecting shell concrete roofs without cluttering up the space below with scaffolding and shuttering. I said yesterday there might be a point in my Table V where from information received from various sources the cost of sheet-metal roofing seemed to be high. It is worth debating whether metal sheeting, copper and so on are not worth the extra cost involved at the capital stage to avoid the snags sometimes found with felts. It seems relevant, because with some sheet metals you have the same permanence as with tiles, slates and so forth.

Mr. R. Baden Hellard [A]: I should like to endorse Mr. Barr's words first when he said we were silly to let Mr. Bird go to the Building Centre. It seems to me that as a profession we are organised throughout the country in a series of small pockets, small practices, local offices and private offices. Our problem keeps coming up. It came up last year when Mr. Ling referred to information.

Whenever architects come together it is clear that there is a wealth of information on logical rational experiment carried out to sound solutions. But somehow it does not reach the rest of us.

We have a JOURNAL which publishes monthly papers and discussions and will publish the proceedings of this Conference in full. That JOURNAL gives a lot of information, but most of us have little bits of special knowledge that would swell the general knowledge.

One speaker has suggested that the R.I.B.A. should do something. Surely we are the R.I.B.A., and surely it is up to us to do something! We have all this information. Could we suggest that the JOURNAL has a technical supplement, published monthly, with a skilled staff to edit it? It will also need finance. We should send all the information we have to the R.I.B.A. where it could perhaps be edited and arranged in some order and sent out.

How is it to be paid for? The subject of this Conference has brought us back to new

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materials, and new materials we must all consider seriously. We want to know the true facts, but one journal says something today and next week another says the reverse. The manufacturers of new materials want to get their materials known about, and there are manufacturers who try to find out about their materials before putting them on the market. They spend a lot of money on publicity and they would, I am sure, welcome the added benefit if the information came out in a JOURNAL supplement, such as I have suggested. That might be a source of finance.

Mr. Alfred G. Church [F]: I returned to England from Singapore fifteen months ago, where I was in private practice. During twenty-two years' practice, we were using bituminous ply roofing on concrete flat roofs, carrying manufacturers' guarantees.

In the earlier work the insulating medium was laid first, and covered with the ply which was protected by white chippings. Many failures occurred from bubbles due to water vapour being trapped under the ply, and water seeping through the flashings. The surface of the ply was also burst and in some cases torn by movement of the concrete.

In later years reasonably satisfactory roofs were laid by adopting the following method of laying:—

- (1) The under felt was not fixed to the concrete, except at the edges.
- (2) The insulating medium was laid on top of the ply.
- (3) Parapets were omitted, the roof slab being cantilevered over the external walls.

The failures and difficulties we experienced were similar to those described at this Conference, except that our failures occurred within months and not years as has been the experience in England.

In this connection the B.R.S. might like to consider obtaining information not only from architects practising in England, but also from British firms practising in the tropics, who are now using modern methods such as curtain walling, etc.

Whilst it is appreciated that tropical conditions are different from those in England, I am convinced, after attending this Conference, that any failures of new materials in the tropics are similar to those experienced in England, except that such failures occur within months and not years as is the case when used in a more temperate climate.

Mr. Clive Pascall [F]: I do not wish in any way to detract from the B.R.S. reports and technical information generally supplied. But in a busy practice I find it difficult to read all this stuff and keep up to date with what is going on.

I have come back from the A.I.A. Centennial Conference in the States. I do not want to give the impression that American architects are a captive audience; but the Producers' Council, the building materials end of the building industry, have a first-class exhibition right down in the basement under the meeting hall. The members are apparently all honorary members of the

Congress, and they deal with matters on the spot and take part in the whole thing.

There is a lesson to be learnt from this and also a warning. Reference has been made to lifts and services generally. Lifts in the States are getting more and more complicated and expensive, and the addition of gadgets and the effect of high-pressure ventilation systems, square ducts through which piping may be laid and so on all sends up the cost. They may go all the way through 15, 35 or 45 floors in a skyscraper. We are going to be in danger if there is an invasion of the same thing in this country. The Lever Building has a built-in travelling cradle system, largely to help advertise the use of the system. It was thought out by the Otis Elevator Company in conjunction with the curtain wall window manufacturer. You simply add an extra tee and slide down the main building.

Can we back up the suggestion made by the speaker before last for the distribution of information without too much paper? I back up Mr. Hilton Wright's last suggestion.

Mr. G. D. Nash [A]: In answer to Mr. Church, we already have at the Building Research Station a colonial liaison section consisting of architects and scientists who visit the colonies and also receive visitors from those areas at the Station. His suggestion is therefore in operation.

You cannot necessarily extrapolate performance from one set of climatic conditions to another, but experience gained is, of course, very useful.

Mr. A. G. Church [F]: At the discussion group yesterday afternoon there was a reference to a new approach by the B.R.S. towards private architects in connection with individual buildings. I am not sure whether they are including men working in the tropics. The larger firms perhaps have tropical architects who are included. It would be a good idea.

Mr. M. Tauté [A]: For the past nine years I have been practising in Cape Town as a South African.

Arising out of Mr. Barr's water storage problem, the Metropolitan Water Board require us to build vast reservoirs on the top of all buildings. In Cape Town the Water Board does not require the private house to have a storage tank at all. You take the cold water direct off the main. If you suggest that to the M.W.B. they throw up their hands in horror and say you might have a burst tap in the bathroom and water gushing down the staircase. The answer is that taps or faucets or stopcocks can stand up to enormous pressures.

If there is no storage tank in the roof, plumbing is simplified, pipe runs are cut down and there is no ball valve to contend with in your roof space. Also you do not have the noise of the tank.

One other point may be of value. We have a slightly different system of obtaining reinforcement steel for a building. The architect consults an engineering consultant

firm at the drawing-board stage and decides on the form of structure to be adopted. You can get the man from the drawing-board in your office or see him in his office and thrash out the planning and structure at the same time, which is what we are all trying to do. Having decided on the scheme, you obtain tenders for the steel from three or four or more firms. They are competitive tenders so costs come down considerably. I do not know whether that system is used over here to a large extent, but it does not seem to be.

Mr. L. M. De Syllas [F]: I should like to add from the receiving end that those who have had constant contact with the B.R.S. since 1950, when this special liaison section was established, can confirm the enormous amount of good that it has done. They have been able to issue a great deal of information. What is even more important is the response from architects working in this country and overseas in contributing information. Evidently the Station must depend on the practice of people abroad in order to be of use. Their system of sending officials out to overseas territories to examine problems on the site and encouraging us to come back and discuss our problems has been invaluable. One would not be exaggerating in saying that there has been a revolution in the whole attitude towards building techniques in overseas territories since the Station established some of their research work.

Even in the short period we have been practising abroad we find by comparison with buildings put up only a few years earlier that techniques for building tropical buildings have completely changed.

The Station have also encouraged and are assisting enormously in creating a department of tropical design which, though in its early stages in London, will, I think, make an important contribution to the problem of the dissemination of information and training for people who work overseas. It will make contributions to the technology of architects overseas which will be largely dependent on the collaboration and assistance given by the Station.

Mr. W. M. Woodhouse [A]: I should like to assure the speaker who referred to the assistance we could give to private architects that they are very welcome. We are not an official agency in any sense of the word. Most of our inquiries come from private architects and we shall be glad to meet them at any time on their own ground or at the B.R.S. or in London on any problem they may have connected with building.

Mr. Bryan Westwood [F]: I want to take up the point touched on by Mr. Womersley —shell roofs with the elimination of shuttering.

We have had some little success with this, and a good deal of the discussion so far has referred to failures.

I want to ask the platform why such a system is not increasingly used. I refer

to a mesh-covered steel frame of various kinds with a trowel or spray concrete layer building up. Shuttering is not required, and the resulting concrete is much denser than usual. So far we have dealt with five buildings in this way without any trouble of any kind. It is not our invention but is a system well known to engineers. It is cheap, and as far as I can see effective. Why is it not used more? And why must we always compare the cost of a normal shell roof with its shuttering which represents more cost for steel? Roofs of this kind are probably cheaper. Perhaps some information may be given on this point.

Mr. J. L. Womersley: It has been done in the apses of churches in one or two cases. It seems fairly new, and I wonder whether it would be applicable to large spans; but I cannot claim expert knowledge. I would welcome any comments or contributions, and I welcome what Mr. Westwood has said.

Mr. John Stillman [A]: I want to take up the idea that this might be called a reactionary conference. It is suggested that far from looking back we are a forward-looking conference, faced with reality. I agree entirely. On reading the papers we find references to the excellence of brick and tile construction and to failures of modern alternatives.

Most architects wish to build with a clear conscience about maintenance! Brick and tile still seems to serve best the purpose of small load-bearing constructions, two or three storeys high. For higher buildings, framed buildings, or where flexibility is important, the brick and tile structure is not adequate, and architects are rightly experimenting with the very many forms of framed construction. This is the cause of so many of the troubles discussed in the papers.

We all want more information. Mr. Alvar Aalto suggested that we should have only one or two experimental buildings and await the results of the experiments, but few architects would welcome such a system. It is clear that today the interchange of information could save a lot of trouble. We might try to persuade architectural journals to review critically buildings that have been erected five to ten years.

Why are we so slow to develop infilling frameworks for multi-storey buildings? And why, although it seems illogical, are brick infilling panels still the cheapest?

First, site labour is at the moment cheap compared with material.

Secondly, we do not seem to have any practical standardisation for large components other than flush doors and standard metal windows, which themselves show tremendous savings. Modular coordination has very little practical effect yet. It will presumably take many years to bring about.

Thirdly, we do not in this country think big enough. Town planning seems to be on too small a scale as well as building contracts, and even when buildings are reasonably large they are often phased,

which tells tremendously against economy in construction, continuity and repetition.

Mr. D. W. Sharpe [A]: Mr. Womersley referred to Table V. We have had a lot of trouble with built-up felt roofing and naturally Mr. Womersley's paper has gone into it pretty fully. I do not think there is anything we could disagree with in what he said, but I should have liked a little more reference to the sheet roofing materials, copper, aluminium and zinc. I do not think Table V does them justice. It is fair as far as it goes, but it tends to ignore the structural saving due to lightweight materials, particularly on the wider spans.

I realise that zinc cannot be used in industrially contaminated atmospheres, but we have seen so many troubles with the modern flat roof, culminating with the withdrawal of the guarantee by the felt manufacturers, that I feel we ought to follow up as far as we can the other sheet materials. To the best of my knowledge, they have not been used, perhaps, as much as they could be.

Copper, as we know, is expensive and a lot of us are scared of the electrolytic action which is inseparable from it. Before the war, we should, of course, have used natural asphalt. Lanchester and Lodge have used it in the University and it is used in some Government buildings; but very few of us can now afford it.

I should like to suggest that we get away from the materials we have been using and try sheet metal materials. Sheet zinc is used extensively on the Continent and has been over the years, particularly in North Italy, Austria, parts of Switzerland and parts of Germany in both domestic and large buildings. I have seen buildings put up there forty years ago where the sheet roofing is perfectly good. This is in atmospheres which are not highly polluted, but it points to the fact that we could use sheet metal materials with reasonable economy. It might cost a little more than built-up felt, but we have had so much trouble with that. I would press for further consideration of this and for more information about sheet aluminium and sheet zinc.

Recently, I have noticed on the Continent that the standing seam method of jointing the sheets has been largely accepted. It has quite a pleasing appearance. From the information I was able to obtain, this is more economical than roll and welding, and the methods we have used previously. I should like to know if anyone else has used sheet aluminium or sheet zinc on low pitched roofs. I am convinced that although it is a little more expensive than built-up felt, it has about double the life and the extra cost would not seem to be as high as is shown in Table V.

Mr. J. L. Womersley, in reply: Mr. Sharpe has qualified his remarks, because he says these materials are not good for polluted atmospheres. If anyone wants to see zinc with a polluted atmosphere, we will show him some at Sheffield. But otherwise there is a great deal in what he says. If it is feasible there is a lot to be said for using

sheet metal materials for low pitched and flat roofs.

Mr. J. Godfrey-Gilbert [A]: Brick has only been mentioned once—I think by Mr. Stillman. I should like to make a second reference to this old and—shall we say?—trusted material.

For a few years after the war I was rather depressed with the slow deliveries of bricks, and I think we all looked for alternative materials. When we come back from the Continent, having seen the fine effects that our colleagues in, say, Italy or Austria can obtain with renderings, we do feel very frustrated.

I should like to ask why it is that our bricks generally seem to be of such poor quality and so full of clinker. I cannot understand how we as architects can be expected to build reasonable-looking buildings with bricks which are almost black when they arrive on the site. For the last ten to twenty years the manufacturers have taken it into their heads to give us clinker to look at instead of good clay bricks.

On touring the brickfields in Holland only three weeks ago and looking at new buildings, I was amazed at the quality, the beautiful quality, and the colour variation of the bricks our Dutch colleagues are lucky enough to use. Why cannot our own brickfields produce good bricks with similar colour variation?

I am more convinced than ever now that I was wrong after the war to look to colour renderings. I have found renderings in this country, especially in London, where I work, unsuitable because the maintenance costs are so high and the effect after two or three years is rather sad. I am convinced that we could produce better architecture if we were given good bricks with greater colour variation and by using various bonds and pointings.

Lastly, why have we to spend so long on our sites, almost courting the foreman bricklayer to get his workmen to produce good work? The average brickwork we are producing in this country—with one or two outstanding exceptions—is shameful, and as I say I am very depressed when I go to Holland and see how wonderful is their work compared with ours.

The President: We must now come to finance.

Mr. Thomas Mitchell [A]: The system of inviting each speaker to say a few words about his paper breaks down when it comes to me, because mine was an outline of the subjects to be developed by other speakers, both up here and from the body of the hall. I have been wondering how I could reverse the process and condense some of the points raised in the study group into an outline! I am not going to try.

Yesterday Mr. Tyrrell made a plea for a resolution from this meeting, deplored the effect of taxation on the relative expenditure on maintenance and capital. At the study group, he complained that I gave a bare answer from the platform. I entirely agree. All I intended to imply was that I

doubted whether a resolution would have any effect.

On the exchange of information, we have given a great deal of attention to this subject at the R.I.B.A. in the Science Committee. One result was Mr. Bird's appointment at the Building Centre. We are not satisfied, however, with what we have done, and the President has agreed that time be allowed for discussion from the floor on this subject.

Mr. Kenneth R. Emmett [A]: Briefly summarising, the two points that come to light are the relationship between capital and maintenance costs and, secondly, the period of life of a particular type of building.

In the local authorities, we have a guide at the moment in loan sanction, but we might get loan sanction for sixty years for a block of flats which might have to last one hundred or more years. Any guide we have at the moment is quite immaterial. If we could be given this information by even the B.R.S. or the D.S.I.R., but preferably—I repeat—by the R.I.B.A., perhaps we should have a basis on which to plan for a period of years. We could then design accordingly and so achieve our ideal of no maintenance and just the initial capital cost.

I will give you two brief illustrations. It is not very difficult to persuade the appropriate Electricity and Gas Boards to lay new electric cables or gas mains horizontally across a redevelopment site and vertically up within a building quite free of charge. When we come to the Water Boards or Waterworks or anyone else, we have to pay for every inch of water-main running from the perimeter of the site horizontally across the site, even if we have omitted certain roads there before, and vertically in the building. I have had it out with the appropriate Waterworks, and it would need an Act of Parliament.

I would suggest that the R.I.B.A. could save great cost in water on sites, irrespective of storage, by persuading the various Waterworks and Boards to reorganise the local system under which water is supplied by turning to central control rather than the higgledy-piggledy control of the moment.

Various methods of floor heating were mentioned, but not all of them. I will not dwell on them but will give you an indication of the saving obtained by installing electric floor heating rather than oil-fired district or central heating. On a redevelopment site of approximately 600 flats, a small number of four-storey or five-storey dwellings were to have coal fires and the remainder to be centrally heated. We went into the relative costs of central heating by oil-fired boilers and by electric thermal storage heating at off-peak tariff. We found that on a contract of £1½ million we could save at least £40,000 on capital cost, apart from terrific maintenance over the years and supervisor-maintenance as well.

Mr. C. G. Stillman [F]: It seems to me that the tendency today under capital costs is to pay insufficient attention to the end-

product over the years during which the building must serve its purpose. You may say that is a wide generalisation. I think that we people in official work find we have to work to instructions, many of which are based on wide generalisations and general policy—and for financial reasons.

In the office we have tried to set up standards which are based first on the known behaviour of materials and secondly on systems and materials which are not so well known where to some extent we are taking a chance. There are, in this post-war period, so many new materials which have to be used where our knowledge is insufficient.

The question of building materials, different forms of cladding and so on has been referred to many times. I find the speed at which we have to work today in getting out drawings, schemes, tenders and so on makes it very difficult to spend the necessary time in examining, analysing and considering all these factors. Now we are beginning to get better cost knowledge. We have cost analysis which helps to tell us what we can afford, and it does set up cost standards of a kind. But what I am afraid is happening is that we overlook the performance standards. For example, we may use roofing material which most of us would agree will have a very limited life of perhaps not more than 25 years. The same might be said about certain flooring materials. We have to do these things, regardless of what we wish, not because we choose them freely but because they are dictated by the initial cost. This has set up a much higher standard of technical application in the architect's office, and I am not sure whether the public—certainly the people who serve on local government committees—are aware of this or whether they are aware of the difficult position in which architects are being placed.

I would suggest that more publicity be given to this exacting problem with which the architect is faced today.

Mr. Mitchell, in reply: I think our outlook with regard to capital and maintenance costs must be this. We must stop thinking about capital costs as something distinct from maintenance costs—capital cost as something that happens now and good marks are given for it if it is low; and maintenance cost as something that happens in years to come, and concerns not us but someone else. I have said that we must keep initial costs as low as possible. On the other hand, we must always think that at any given moment there is so much money and so much labour and material which can be expended on building as a whole—new construction and maintenance. In national terms it is an indisputable proposition, and it must be so with our large authorities. They have so much money to spend in any one year on building, and if they care to spend a disproportionate amount on maintenance to the detriment of their new construction they are making a very bad choice.

A great deal of propaganda could be done here by architects themselves. Archi-

tects to local authorities must, I think, talk about this not only to their committees but to the treasurers and permanent officials, who advise the committees and have as much influence as the architects in many cases on what is spent. This line of approach must, I think, be kept in mind.

On Mr. Emmett's point about heating, it is not perhaps sufficiently realised that the economics of off-peak electricity are not only dependent on the development of atomic power stations but are an integral part of the economics of coal-fired stations as well.

The Authority is trying to sell off-peak current now, and Area Boards will be trying to sell it in increasing quantities as the years go on because generating capacity is starting to go up. We have not heard much about it in the years since the war because there has been an overall shortage of generating capacity and the supply authorities have not had the slack periods in their twenty-four hour programme which they are now beginning to experience. They are now getting worried about the disposal of their off-peak current and will be offering it to you not only during the night period. They will be very willing to give you a boost for your under-floor or other form of off-peak heating at times when they find they can afford to do so. These times will vary from district to district, according to local characteristics. What happens in Burnley will not be at all what happens in Cornwall.

Mr. J. M. Austin-Smith [F]: I have been impressed with the desire expressed from the floor and the platform for an interchange of information from one architect to another on the behaviour of materials and services. It has been suggested that the R.I.B.A. should get on with this, and one is tempted to get on the band-wagon and say so. But one has to be rather careful about this, because—as Mr. Eric Bird said about the York course—you do get the truth with small intimate groups.

It seems to me, therefore, that the local societies and associations are the places where these small groups should be formed. Regional information centres could be set up, and the R.I.B.A. could co-ordinate the results obtained and publish them as co-ordinators of possibly piecemeal information sent in from all parts of the country.

It may be of interest that in London we have at the A.A. a committee on costs and it might well be that one of the results of this Conference might be the setting up in local societies and associations of technical committees on this subject.

Mr. John Brandon-Jones [A]: We have heard a lot about local authorities and their not being prepared to worry too much about maintenance costs but worrying more about capital costs. It has been my experience recently to appear before a public inquiry as a witness in a case where the local authority was proposing to spend a large amount of money on an office block. I found in preparing my evidence that the treasurer, at any rate in that particular



At the Informal Reception. Mr. E. Steward Smith [F], President, Berks, Bucks and Oxon Architectural Association, and Mrs. Steward Smith, the President, R.I.B.A., and Miss Jenifer Cross

case, was extremely interested in maintenance costs. He did make a strong point in his financial statement that the new building, although apparently expensive, would be an economical one. He used the information I was able to collect on other buildings of the same kind as to maintenance costs over a number of years and that was a part of his evidence in making his case. He convinced the inspector, at any rate, that it was worth having this new building.

I think the Ministry inspectors and the treasurers, at any rate, in some authorities are very much aware of the position. But I do think it is important in cases where perhaps particularly the treasurer may not have had the experience of going on from one place to another; he may need a little private tuition from the architect. It is we who have to give it to him.

We have found that under-floor ducting is terribly expensive and one solution is to have a pitched roof, using the roof triangle—which is not, as Le Corbusier sometimes pointed out, waste of space—as a duct. We find it gives an open space over the building which provides good heat insulation. We can take the whole of the services up in one corner from the boiler-room direct and all the way round the building in the roof space and drop them where we want them. This is common sense, as a good many of you will have found. But for some reason or other it does not seem to penetrate into schools of architecture, perhaps because they study the glossy magazines. I am always sorry for students in schools of architecture. I was brought up in an office before I went to a school, and had handed on to me a certain amount of tradition on building.

What we are trying to do now really amounts to passing on the tradition on building. We are accumulating experience all the time. It is scientific experience, of course, in the proper sense; and it has to

be handed on. We have to be traditionalists in the sense that we pass on the things we find. The traditionalist is not someone who is looking backwards all the time. He tries to pass on his experience to the next generation.

Mr. George L. Greaves [4]: It is my belief that if we sat down and consciously devised as bad a fiscal policy for the building industry and architecture as possible, we could not improve on the present one. We have heard how capital and maintenance are handled through general taxation, but I am surprised no one has mentioned that the same effect is derived from local authority rating. I have a client who always paints his building the year after the quinquennial valuation in the hope that its poor aspect and general decrepit look will enable him to put in an appeal against his rating assessment.

What a fantastic situation we find ourselves in! When we are doing good for the benefit of the community and producing good new buildings, we are immediately made to pay more money for that general good service. I sometimes suggest there is a quality of deliberateness in this policy: I hope I am wrong. But if it is not deliberateness, it is ignorance.

The point I wish to make is that we as a learned body, concerned vitally with the building programme of this country, could do a lot of propaganda to drive this point home to the public and through the public to the Government. As a result, we might get a more generous and sensible fiscal policy.

Mr. Hugh D. Roberts [F]: I should like to support Mr. Austin-Smith.

I should like to recommend to this Conference that study groups be formed locally and that the information be made available to the R.I.B.A. and in turn to all members.

I feel that as a profession we are falling behind with the dissemination of knowledge, compared with, say, the medical profession who are making a fine job of it.

Mr. W. Church de la Porte [L]: On the matter of information, we have a lot to learn from other professions. I understand that the solicitors have a method of collecting information under which each firm of solicitors contributes a certain amount—five or ten guineas a year. The results as they come in from cases are reported quickly, indexed and are there for future use.

The President: I must now ask Mr. David Booth to propose a vote of thanks to the speakers.

Mr. David Booth [F], Chairman, Conference Committee: I take it as a great privilege to be invited to move this vote of thanks. The question whether the serious purpose of these conferences is too much diluted by social functions does not seem to have been quite so energetically canvassed recently. This is undoubtedly due to the high quality of the papers which have been presented to recent conferences and to the development of the technique of a team of speakers to give breadth of experience and variety to the presentation.

The authors of the papers presented to this Conference cover, in their own work and their experience, a very wide range of activity—industrial and local government building and general practice. They have surveyed the field, within their wide—perhaps too wide—terms of reference, with most impressive thoroughness. These have been really ‘meaty’ papers which, besides forming a most useful and solid foundation for further research and inquiry, contain much valuable reference material of immediate value for the ordinary practising architect in his office.

The profession owes a very real debt of gratitude to the authors for what, as we are all very much aware, must have meant an enormous expenditure of time, thought and effort to put together. It is one thing to present a few pleasant generalities to a meeting: it is quite another matter to prepare papers of the high calibre presented to this meeting (*applause*), which are not only of high calibre in themselves but are remarkably fully documented and clearly the result of a great deal of research. Practising architects, in particular, owe gratitude to them for giving so much time. No doubt, as with the rest of us, they are fully occupied in the ordinary way with the daily struggle to scrape together a bare living.

I am sure this meeting will wish me to express, in the most sincere and emphatic way, our very deep gratitude to Mr. Mitchell, Mr. Womersley, Mr. Cleeve Barr and Mr. Eastwick-Field for the preparation and presentation to this Conference of the papers on the Finance, Design and Durability of Buildings. I have very great pleasure in proposing the vote of thanks.

Mr. R. W. Cave [F]: I am proud to have been asked to second this vote of thanks,



At the Informal Reception

Above, top: Mr. A. B. Waters [F] being received by Mr. E. Steward Smith [F], President, Berks, Bucks and Oxon Architectural Association, and Mrs. Steward Smith

Centre: Mr. E. G. Chandler [A] and Mrs. Chandler with Mrs. Lesslie Watson and Mr. Lesslie K. Watson [F]

Bottom: Mr. Donald E. E. Gibson [A], Mr. F. B. Pooley [F] and Mr. A. G. Ling [F]

Above, top: Mr. J. T. Castle [A], Mrs. Clifford Culpin and Mr. Clifford Culpin [F], and the Secretary, R.I.B.A.

Centre: Mr. N. C. Hughes [A] with Mr. Hilton Wright [A] and Mrs. Jennifer Wright [A]

Bottom: Mrs. Geoffrey Beard and Mr. Geoffrey Beard [A] with Mr. Lesslie Watson



At the Garden Party. Top L: Mr. K. A. Stevens [F] and Mrs. Stevens. Centre: Mr. Reginald Cave [F]. R: Mr. Lawrence Dale [F] and Mr. Eric Bird [A]. Bottom L: Mrs. M. G. Ballard, Mrs. Ivor Beese and Mr. Ivor Beese [A]. Centre: Mr. J. A. D. Cox [A] and Mr. Gerald Banks [A]. R: Mrs. C. A. Richards, Mrs. W. M. Woodhouse and Mr. C. A. Richards [A]

and it is not unfitting—possibly—that I should have been asked to do it. I happen to be the head of a school of architecture which, in the past ten years, has suffered an acute attack of dry-rot in its staff room and has had the floor on the point of imminent collapse in a lecture room owing to the activities of boring insects. In a different capacity as head of a school of building I am interested in a much newer building which has flat roofs. On a day such as this, I think if one wrote to Mr. Allen in his official capacity, he would probably advise that the students—and appropriately enough they are young building craftsmen apprentices—should be furnished with light portable collapsible waterproof membranes, which in unscientific language, of course, would be called umbrellas.

Those of us who were at our university schools, perhaps longer ago than many of us like to remember, may probably recollect with me being told that flues should be paraged with—if I may mention it, Mr. President . . . (*laughter*): it seems unnecessary to mention it. In those days we did not, as students, demand immediately to know whether there was a B.S. specification for

that material. We know only too well that there was no Code of Practice available at that time. But we did ask—or rather Henry Goddard asked—the lecturer, ‘Oh, Sir, how do you get the cow on the roof?’

Brandon-Jones has mentioned tradition. Twenty-five years ago, when we were students in the schools, building science, architectural science, was in its infancy. We were not scientific, as I have shown, but we were certainly practical. Our four speakers have shown, I think, in a sort of public soul-searching of a most stimulating and thoroughgoing kind, that whilst today we have become frightfully scientific, we seem to have become a little—unpractical, I think, is the word.

The most depressing aspect about their papers is, is it not, that traditional building appears to be the only completely fool-proof kind of building—as yet. That is a depressing conclusion, I am afraid, to this quite brilliant symposium. So it would appear that science has to go a lot farther. We have all the agencies; I think all we need now is time—time, at any rate (*laughter*). . . . Mind you, I should be perfectly happy to see many buildings not lasting too long. If you have seen this

morning’s OXFORD TIMES you will have seen there an illustration of a really quite remarkable tower and spire which is to be added to the other collection of ‘dreaming’ ones. It is being added at the moment. This is not the block you have passed on your way from the station.

It would be nice to feel that posterity is not to be troubled for too long with contemplation of that on the sky-line of this really rather remarkable city. One would even hope the Royal Fine Art Commission might ask for some modification before it is too late. It is probably naughty of me to say that, but I am a preaching architect and not a practising one.

I would say to those of you who come here to practise in Oxford—and if you look at the list you will see it is a very popular place for non-Oxford architects to practise in—if you are asked to do an important building, please do look at the way Oxford has been built from 1066 until the advent of Mr. Jackson towards the end of the last century. Between these two dates—quite a long period of time—you will find not a yard of rubble anywhere in the central area of the city. But our most distinguished and eminent practitioners

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from provincial cities in the far north and the metropolis itself appear to feel, if they are asked to do a job here, that it is a point of honour for them to smother it in yards of rubble with a heavy liverish breakfast-food kind of texture which is completely at variance with the soft smooth ashlar of Oxford.

But I am digressing, so, Mr. President, I do join with Mr. David Booth in thanking these four gentlemen for tackling an almost impossible task. They did a difficult job supremely well, and I have very great pleasure in seconding this vote of thanks to Mr. Thomas Mitchell, Mr. Lewis Womersley, Mr. Cleeve Barr and Mr. Eastwick-Field.

The vote of thanks was put to the Conference and was carried with acclamation.

Mr. Mitchell, replying to the vote of thanks, said: I am delighted to express, on behalf of the other speakers, our pleasure and amusement at the vote of thanks proposed and seconded by Mr. David Booth and Mr. Cave. I am sure we could not have wished anything better and we are very gratified.

On Mr. Cave's point about his flat roof, one of the things which has rather surprised me in this Conference, in view of the undercurrent of apprehension about flat roofs and the fact that we four speakers expected that this might take a not unimportant part in your discussions, is that no one has suggested it is high time and perhaps not impossible that we might have a new material—I am being perfectly serious—for flat roofs. I say this particularly in view of the fire hazard which has come

into great prominence recently with both bituminous and mastic asphalt roofing.

It is not enough simply to say we will not have them. They are misused a great deal, but on the other hand there are occasions when we should be depriving ourselves of useful amenities were we not able to use a flat roof.

On a similar subject, again I am surprised no one has said the profession is itself a little to blame for a lot of the troubles we have been discussing. On the whole, architects are much too gullible. I do not think there is any doubt about that. I come into contact a good deal with industrial and commercial people who are very sales-minded, and I am always telling them my job is not that of a salesman but that of a sales resistor. I often wonder whether other architects take that side of their job seriously enough.

You must remember that the world is full of people who are trying to get you to part with either your own money or that of your clients. It is your job to look at both sides of the penny, to look carefully at the financial side, before you part with it. In the school where I was brought up it was both sides of the halfpenny.

Lastly, on the subject of the Conference as a whole, we four speakers are well aware of the deficiencies in our manner of handling it, although we are grateful for what Mr. Booth and Mr. Cave said, and we apologise for them.

We had yesterday at the study group from Mr. Ling, City Architect of Coventry, a valuable suggestion in this respect. He suggested that it would have helped a great deal if, at the same time as we were sweating away, we had invited people we knew



Professor Basil Ward [F] and Mrs. Ward

would be capable of making a contribution to give some thought to the subject and speak here. He himself, he said, would have been very willing to do so.

I thank him for his suggestion, and I am sure it will be borne in mind for future years.

I am sure the rest of us are as gratified as I am at the quality of the discussion. If any of you feel it has not been so well knit together and directed as it might have been, again I certainly, and I am sure the other speakers, will be very willing to take the blame, because it was our job to see that everything was done properly.

This concluded the proceedings.



Mr. Peter Shephard [F], Professor Basil Spence, Hon. Secretary, R.I.B.A., Miss Gillian Spence and Mrs. Spence



Mr. David Booth [F] and Mrs. Booth

The Conference Dinner Speeches

held in Oxford Town Hall, 11 July

Professor Basil Spence, O.B.E., A.R.A., A.R.S.A., Hon. Secretary, R.I.B.A., proposing the toast of The City and the University of Oxford, said: Mr. President, Mr. Mayor, Mr. Vice-Chancellor, My Lord Bishop, Ladies and Gentlemen, it gives me very great pleasure to propose a toast this evening, the toast being to this beautiful city of Oxford and the University, coupled with the names of the Mayor and the Vice-Chancellor of Oxford. We also have with us the most distinguished speaker who is proposing the toast of the Royal Institute, the Vice-Chancellor of Reading.

The subject of this Conference is one which is extremely appropriate to Oxford. We all know of the great campaign to save the buildings of Oxford, and as architects we wish the authorities who have launched this appeal every possible success. We feel that the great architectural heritage we see in the buildings in Oxford should at all costs be preserved.

When we look, sometimes in the rain, sometimes in the sun, at these buildings, it is remarkable how well they look in any weather conditions. We realise the quality of the material and the craftsmanship and the thought that have been put into them. It is true to say that Oxford has suffered terribly in the last hundred years. Beautiful buildings have been lost and the buildings pulled down have been replaced by weak imitations of themselves, sometimes imitations of another period altogether.

In spite of these massacres and of the encroachment of highly successful industries, Oxford retains enormous charm; we have felt the beauty and quality today of this beautiful University city.

I cannot help feeling there is a deeper quality that should at all costs be preserved. There is a need for humanity and scale in the world we live in; and surely humanity is one of the greatest prizes. Growing out of humanity and scale is a wonderful feeling of enclosure; and Oxford, as well as its great sister the University of Cambridge, has given the world a background for scholarship that has become the pattern for all universities.

It is interesting to see in America and Canada how much this pattern is respected, how people with a newborn culture like to transplant the culture of an old country.

But I wonder whether this is the right way—to copy exactly the products of the mind. To keep to its core and essence, we should surely copy the mode of thought, the standards adopted by the original thinkers.

This is, of course, an argument for modern architecture. It means that architects should analyse the true feeling behind existing work, what is true to tradition, what are the constants, and should translate it into contemporary terms and through contemporary terms into the beautiful virile background of these two great universities—but Oxford specially tonight.

I have noticed that it is mainly in the young universities that modern architecture is being encouraged. Oxford's traditional place in the pattern should be as a leader of architecture, as it has been in the past. This is clear from the buildings here in Oxford—the beautiful colleges, the Radcliffe, and the other buildings we know so well. They were fresh and virile in their day; otherwise, we should not view them with such great respect.

There is a tendency to say that modern architecture is all right for technology; that it is decent for technology but indecent for art; that art should have columns and entablatures; that technology, being young, can take modern architecture. This is rather like the advertisement or notice that appeared in the SCOTSMAN, an Edinburgh paper, when referring to an extension to Heriot-Watt College extending away from the main thoroughfare. This was of modern design, and the comment went something like this. 'As the main buildings will be off the main thoroughfare and therefore screened from public gaze, the architect has found it possible to indulge in modern architecture.'

The Vice-Chancellor of Oxford has in his possession in his college a wonderful collection of Inigo Jones drawings. How many of us have waited for the moment to put Inigo Jones in his position as a once modern architect who introduced the classical idiom to this country. It has strength and it has vigour and it is accepted here as elsewhere.

That is the spirit that we want, the spirit of humanity, quality and inventiveness. It is that interpretation that I should like you to put on this toast and I ask you to stand and drink with me to the City and University of Oxford.

The Right Worshipful the Mayor of Oxford, Alderman R. F. Knight, responding to the toast, said: I understand you were here thirty-three years ago, and it is with great pleasure that we welcome you back here again. It is, indeed, probable that some of you have paid visits to us in between. Some of you have probably stayed away the whole thirty-three years. Perhaps you have walked round our city, and I am not going to describe it as *one* of the most beautiful cities in the world but as *the* most beautiful city in the world. You will undoubtedly have seen changes on coming back. One cannot but remember the Broad as it used to be before the new building at the Jesus end. One cannot help remembering the Cornmarket before the very many alterations of the past few years. But if you do not like the things we have put up, you must be at least more favourably impressed with them than with most of the things that are being put up in your own cities and towns.

If you have not taken a walk along the

river, I suggest that you should do so before breakfast in the morning to give you a healthy appetite. Just look at the barges once again, because if it is thirty-three years before the next time most of these barges will be gone.

If you go a few paces farther along, you will see what is happening to Oxford. Some architects have not used their imagination, but some have. But our city is well aware of the value of the architects the School of Architecture is turning out. It is sending out men throughout the world of whom the city is proud, men with the courage and vision to build finely in their own style.

You have been very kind and gracious to drink to the health of my city, and we are very proud to have such a distinguished gathering here this week.

The Vice-Chancellor of the University of Oxford, Mr. J. C. Masterman, O.B.E., also responding to the toast, said: I endorse what was said by His Worship the Mayor. I too am extremely glad that this Conference should come here. The most beautiful place in the world must be the right place for a conference of architects. As I see it, architects are—or should be—amongst the happiest of mankind. You are constructive artists; you see your work before you; you see how good it is. (Perhaps other people do not think it is quite so good.) You are benefactors of the human race.

We live in a beautiful city. Is not it in large degree due to architects that we do?

I remember a discussion about who is the greatest benefactor of the human race. One of those present said the greatest benefactors were, of course, the great religious teachers or the great Greek philosophers because they have done so much for the world. Others said, no, of course, the doctors. Some said Shakespeare for all the pleasure he has given us. Someone was just about to say the architects, when a little man got up at the back of the room and said, 'What about the man who invented compound interest? He was no sluggard.' I do not want to compare the good which you have done with things of that kind; but you are the benefactors of the human race, and particularly now in Oxford you have and must have a great opportunity. There is a need for more accommodation and for new libraries and new laboratories for new colleges. The opportunities here for architects now are very great indeed. We are about to develop and, I hope, to beautify two of the finest sites in Oxford in the Keble Road triangle and the Manor Road site. They are magnificent sites and the future beauty of Oxford will depend partly on the way they are developed and how architects design the buildings. It is not easy: it cannot be as easy anywhere in Oxford as in some other places, perhaps. We must hope that the new will harmonise and fit in with the old.

I myself am the signatory of a modest little appeal for £1½ million, and I hope we shall get it. It shows, I think, how much

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Top L: The President, R.I.B.A., and Mr. J. C. Masterman, Vice-Chancellor of the University of Oxford. Top R: Mrs. Spence, Mr. A. H. Smith, Warden of New College, and Mr. T. S. R. Boase, President of Magdalen.

Bottom L: Sir George and Lady Schuster; The Bishop of Oxford and Mrs. Carpenter, and the Lady Mayoress. Bottom R: Sir Thomas Bennett [F], talking across the table to Mr. Masterman, Miss Jenifer Cross and Sir David Lindsay Keir, Master of Balliol.

we value what we have. But Oxford is not only a museum of the old; it has a place for the new as well. It is a living place and that is why what goes in now must harmonise with what we have already. From my own college, I can see 20th-century, 15th and 16th, and 18th-century buildings. They harmonise in a wonderful way, and the effect is greatly helped by a magnificent copper beech. And for goodness' sake when you provide buildings do not destroy our trees!

Speaking for myself, when I look round at these buildings I am very impressed by the share of the amateurs. We do not know the architects of the 15th- and 16th-century buildings. We do know that George Clarke of All Souls helped enormously with our 18th-century buildings, just as did Aldrich with Christ Church Library. When I go to Cambridge I am always told and never believe that the south front of Clare College was designed by the college gardener. But I do ask you not to despise, when designing for us, amateur opinion. Let me put to you the prayer of the parson, 'Oh, Lord, won't you make more use of me, if only in an advisory capacity?'

We hope when these great buildings are

designed you will pay a good deal of attention to the amateur opinion because we have great love for our buildings and general set-up and a 'feeling' for them, living here, as well. We want Oxford to grow as a living place. We do not want only to cling to the old but we want the new to harmonise with the old.

The Vice-Chancellor of the University of Reading, Sir John Wolfenden, C.B.E., in proposing the toast of The R.I.B.A. and its Allied Societies, said: Twenty-three years ago I tore myself away from the lotus land of the most beautiful college in Oxford, where I had for five years enjoyed the cloudless and comparatively blameless life of a junior Fellow, and took myself off to be head-master of a school. I suppose in my wilder moments I might have thought I was going to influence, I hope for good, the lives of generation after generation of boys growing up, impressionable.

Sad to relate, at the end of one year I had learnt a great deal about two things. I had learnt a great deal about bank overdrafts and I had learnt a great deal practically—that is, all there is to know about septic tanks.

Some seven years ago I wrenched myself away from the school and returned to what was called the academic life, not, indeed, in this University and not, indeed, in surroundings that resemble the groves of Magdalen, but at any rate a university which is nearer to the metropolis than this one. I did suppose, of course, that I might there enjoy a certain amount of *otium cum dignitate* as an elder statesman in temples remote from the everyday business and bother about boys. I might at any rate read a book sometimes. It has happened that my arrival at the University has coincided with the beginning of a very extensive building programme. For the past seven years I have done practically nothing except behave as an ignorant though learning, uninformed though gradually becoming informed, apprentice. I think I can now be called an improver, amateur, certainly unpaid clerk of works.

Of course, in these seven years I have come to appreciate very closely indeed the problems of the architect. Now, I say appreciate advisedly, not merely in the way in which it is often used but also in the proper sense of paying the proper price.

I have come to appreciate in a much

more real sense what it is, or at any rate what I understand it to be, that the architect is trying to do. And I have, in the course of that, had the almost inestimable benefit of working very closely with one of the most distinguished of your predecessors, Sir Howard Robertson. I have learnt immeasurably from him over the past six or seven years what an architect is. I know by now it is nothing like as simple as I thought it was to begin with. But I have learnt not only how you set about a problem but how you carry it through.

If I may be permitted for one moment to underline or endorse the words spoken by the Vice-Chancellor of Oxford, who is an old friend of mine, I must regard myself in our official capacity as Alexander the Coppersmith to his Alexander the Great. Perhaps I might be allowed to endorse one of his sentiments—that you should not, please not, entirely overlook the amateur. By amateur in this context I mean if I am your client. I know what you are up to. I know that when you are starting on an immense building programme, as we in my University are, what you have to do is not what, in my innocence, I had supposed.

You have to make arrangements for enclosing a certain amount of empty space. That, fundamentally, is what architecture is. You have not only to do that but also to do it in an agreeable way and in a way that will not be, at any rate, discordant with the surroundings, and to do it in such a way that all the people engaged in bringing to pass your dreams play the same game in the same way as you are playing it. I learnt a long time ago now that when you are really engaged in a major building scheme what you have to think about is not the beauties of the entrance hall of the Faculty of Letters building or the ingenious devices for heating and lighting and acoustical treatment for this, that or the other: it is not even the external layout with all your consultants, heating consultants, structural consultants, sanitary consultants. As I have now come to learn, if you are planning a major scheme you have to start in one of two places—and I dare say I could divide the house on that. You start either with the boiler-house or with the incinerator. Having started, you have to take with you your whole team, and that I well know. I have come to talk glibly in recent years about the price per foot cube, about ducts and underground cable. I could tell you a lot if you did not know it already about ceiling heating and floor heating and acoustic treatment, and I know about 2 in. bricks. I know what you have to do in order to get them, too.

I am very ignorant still, of course, but I have come to see the architect as a man who is not only a dreamer of ideals, a painter in the imagination, but also as a man who has to take pains with his dreams and actualisations and who has to have a lot of other people to help him in actualising them.

It is not my business to indulge in a tribute, much as I should like to have the opportunity of doing so, of architects as

such. But the R.I.B.A. is, I suppose, an embodiment of the profession. And the word 'profession', Mr. President, is, in the English language, a very precious one. I hope we shall not use it lightly. You may, if you will, compare yourselves with the practitioners in medicine or the law or, in my opinion, if the Bishop will forgive me, the Church. But let there be no mistake about it. It is a noble thing to belong to a profession, and that is why it gives me great pleasure in humility and sincerity to be allowed to drink your health as an Institute this evening.

I understand you have in your profession the right sentiments about centralisation and bureaucracy. That is to say, you detest them. And I understand that the R.I.B.A. has no branches. So far from having branches, I gather you are, as it were, a Commonwealth and there are scattered about the country dominions who enjoy dominion status. I believe they tell the other countries in Portland Place to go to blazes. After all, Portland Place is not a bad place to go to blazes from.

It is particularly fortunate and particularly pleasant to me that what is known so cacophonously as the Berks, Bucks and Oxon Architectural Association should be the hosts of this particular meeting. It so happens that for once, though it does not always happen in the English language, the alphabetical order of these counties is the proper order of their importance and quality. At any rate, it is a good thing that there should be no centralised body, no bureaucracy, no clamping hand of Whitehall, but that there should be your vigorous, flourishing and independent local societies, keen to be the strength of the profession.

So here we are in the happy position of being able to drink at the same time to the prosperity and health of the central body and also of those bodies disposed round it as dominion satellites which I hope refuse and will continue to refuse to accept dictation from the centre. With these two I have the honour to couple your own name, Mr. President.

I have only ventured into the architectural field this evening. You, I gather, have just been visiting other architectural fields.

So far as concerns Eric Steward Smith, I am delighted that it is possible to couple the name, in this toast, of one whom I know personally and whom everybody in my part of the country respects and admires.

The President, Mr. Kenneth M. B. Cross, spoke in response to the toast. He first of all welcomed the principal guests who included the Right Worshipful the Mayor of Oxford, Alderman R. F. Knight and the Mayoress, Mrs. Knight; the Vice-Chancellor of the University of Oxford, Mr. J. C. Masterman, O.B.E.; the Right Rev. the Lord Bishop of Oxford, Dr. H. J. Carpenter, and Mrs. Carpenter; Sir David Lindsay Keir [Hon. A], Master of Balliol College, and Lady Keir; Sir George Schuster, K.C.S.I., K.C.M.G., C.B.E., M.C., Chairman, Oxford Regional Hospital Board, and Lady Schuster; the Vice-

Chancellor of the University of Reading, Sir John Wolfenden, C.B.E., and Lady Wolfenden; Mr. A. H. Smith, C.B.E., Warden of New College; Mr. T. S. P. Boase, President of Magdalen College; Mr. Charles Batay, O.B.E., Printer to the University of Oxford, and Mrs. Batay; the Worshipful the Mayor of Reading, Alderman T. S. W. Smart, and the Mayoress, Miss F. Smart; Mr. G. H. M. Williams, Regional Director, Ministry of Works, Southern Region; Mr. George Watts, Secretary, Oxford Regional Hospital Board, and Mrs. Watts; Mr. Charles R. King, Chairman of the Berks, Bucks and Oxon Branch, R.I.C.S., and Mrs. King; Mr. P. H. P. Lovell, President, Southern Counties Federation of Building Trades Employers, and Mrs. Lovell; and Mr. Kenneth Macrae, Secretary of the Royal Incorporation of Architects in Scotland, and Mrs. Macrae.

He also welcomed Mr. George Foster and Mr. Leon Brown, representing the A.I.A.; and Mr. Richard Fisher, representing the Ontario Association of Architects; and expressed his regret that Mr. John Wade [F], representing the Royal Architectural Institute of Canada, was unable to be present at the dinner, owing to illness in the family, although he had attended the morning meeting.

Mr. Cross continued:

Just a word about the Royal Institute and the doings of the Royal Institute and so on. We think the time has come when our policy with regard to our Societies overseas needs amplification. In this fast-changing world, it has become imperative in the interests of the Allied Societies and in our own interests that we should become rather more overseas-minded than we have been in the past and that we should take steps to unite under one vast and widespread working organisation all the overseas architects who are allied to us.

In view of our long experience, we have much to offer to the newer countries, and on the other hand they have much to offer to us in the new ideas, drive and enterprise and vigour which support them. Accordingly, at the request of the Council, the Secretary and I undertook an extensive tour on 20 March, returning on 5 June, during which time we covered more than 32,000 miles.

You may well ask why we went. We had three main objects in view. First of all, we were, as we did not hesitate to point out, ambassadors of fellowship and good will from the architects here in the British Isles to those scattered abroad many thousands of miles away. We came with this message of friendship from us to them and with the idea of discussing ways and means of getting closer together than has been the case in the past.

Secondly, we came to discuss matters dealing with the registration and education of architects. We wished to ensure that the A.R.I.B.A. qualification should be of the same standard in the British Isles, New Zealand, Africa, Australia, Canada and so on, all over the overseas countries; and we

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wanted it to be the hallmark of a properly qualified architect anywhere.

With that object in view, we suggested that there should be one major examination in architecture generally, and that it should be supplemented by a small examination in practical experience in local characteristics and local practice, and so on.

By and large, there will be, under this system, far more elasticity than there is today. Men trained in one place would be able to move freely about and practise in another, which in this swiftly changing world is, I think, not a bad thing.

The third point which we raised was the suggestion that there should be an Overseas Allied Societies Conference, to be held every three years in each Allied Society centre throughout the overseas countries; that each centre should hold the Conference in rotation. We in Britain would take our turn if required to do so, and on the other hand we would freely and willingly and with great pleasure send our delegates to any conference which might be called overseas.

Here and now I think I might, on behalf of the R.I.B.A., say this: that if the Overseas Allied Societies consider that it would be a good thing for the first conference to take place in London, we would be delighted to act as hosts on that occasion and give them a very warm welcome.

With this mandate from the Council, the Secretary and I set forth on 20 March last. The welcome we received everywhere was tremendous and far exceeded our highest expectations. The enthusiasm for the R.I.B.A. of our members separated from us by enormous distances was astonishing. I am confident that with the good will that has been proved to exist between us our proposals, which were well received, will in the end come to fruition. I hope the architects here tonight will do all they can to extend and increase our friendship and collaboration with the

Allied Societies overseas and that we shall have closer contact with our generous and great-hearted American architect friends in the years to come.

Sir John Wolfenden, I thank you for the manner in which you have proposed the toast of the R.I.B.A. I thank you all for the way in which you have received it.

The President of the Berks, Bucks and Oxon Association, Mr. E. Steward Smith, J.P. [F], who also responded, said: I very much appreciate the privilege that is mine, as President of the host Association, namely the Berks, Bucks and Oxon Association, of also replying to this toast to the Allied Societies; but firstly I should like to congratulate you, if I may, Mr. President, on your first year of office and on the success of your 'royal' tour round the world.

Perhaps we are not so demonstrative as some of our brothers and sisters abroad, but I can assure you that we in this Association are particularly happy that it is our privilege to be entertaining your Conference on your return.

We are fortunate that we have in this Association's area this historic city in which to receive you and the Conference.

Entertaining the Conference is a memorable occasion in the life of any Allied Society, and we have been looking forward and making plans for this week for the last few months. In this respect, I should like to pay a glowing tribute to the work of the Oxford Branch, who have so willingly and energetically shouldered the responsibility for our part of the preparations.

I will not on this occasion name all those who have helped, but I feel I must mention Mr. David Booth and Mr. Beard, Chairman and Secretary of the local committee.

I am delighted that it was Sir John who was asked to propose this toast tonight, for I am sure that there are few more appropriate than he to do so.

At Reading University he has also become a builder in the material sense and, as you have heard, Her Majesty The Queen recently opened the first instalment of his building scheme for Reading University.

I should like to add my thanks to you, Sir John, for the delightful way you have proposed this toast to the Allied Societies. They have become an essential part of the constitution, but it is important that their scope and function should be further encouraged and developed. I appeal to every provincial member to support his Local Society.

Mr. Mayor, we much appreciate the advantage of having this lovely old city in which to entertain the Conference, and I would like to add my Association's thanks to you and to the authorities of the various colleges for the privilege of using their buildings.

We have been reminded recently of the state of Oxford's crumbling walls. I was very interested last month, at the opening of the Preservation of Historic Buildings Exhibition, to hear the Warden of New College suggesting to your predecessor, Mr. Mayor, that he should fulfil the old custom of examining the town walls in the grounds of New College. I understand that this ceremony duly took place; after lunching at New College he mounted a ladder and made the inspection.

These old traditions are interesting, but they don't always turn out as expected.

An Oxford medical student dug up an ancient university regulation which said he was entitled to a pint of beer as refreshment while cramming for final exams. He was so persistent that the authorities finally gave in and provided him with his pint. But at the same time they also searched the records and fined him £5 for not wearing a sword. There has been some surprise that Reading should supply gas to Oxford. Of course, that is to light Oxford By-pass when it is finished.

Overseas Tour of the President and Secretary R.I.B.A.: Diary—IV

Winnipeg. (10 May 1957.)

Mr. Cross and Mr. Spragg were met at the Winnipeg airport by Mr. Norman Russell and Mr. George Stewart, President and Vice-President of the Manitoba Institute of Architects, and Mr. Russell drove them to the Fort Garry Hotel. In the evening the two visitors were the guests of the Manitoba Association at a reception and dinner at Lower Fort Garry, which was a Hudson Bay Company fort and store on the Red River and was a centre of activity over a hundred years ago. It was fortified against Red Indian attacks and has been carefully preserved. It is now used as a country club and Mr. Herbert Moody, a member, had arranged for the function to be held in this historic setting. Mr. Russell, who presided, welcomed the guests and Mr. Cross and Mr. Spragg replied.

11 May. In company with Mr. John Chivers Mr. Russell took Mr. Cross and

Mr. Spragg for a 130-mile drive through beautiful country to Kenora, Ontario. After lunch there they had a cruise on the Lake-of-the-Woods. The return journey was rapid—60 miles in 40 minutes was the best effort. (The maximum legal limit in Canada is 50!) In the evening Mr. and Mrs. Russell entertained the two visitors to dinner at Pierre's Restaurant.

12 May. The morning was taken up with packing and a short stroll to see the remains of the ancient Fort Garry, and some of the older residential parts of Winnipeg and the fine Provincial Parliament Building of Manitoba. Mr. Russell, Mr. Stewart and Mr. Ernest Thrift joined Mr. Cross and Mr. Spragg at lunch and then Mr. Russell drove them to the airport through the great park which belongs to the City of Winnipeg, passing some of the more recent residential buildings on the way.

Mr. Cross and Mr. Spragg then flew to Toronto, where they were greeted by Mr.

Douglas Kertland [F], President of the Royal Architectural Institute of Canada, and by Mr. Forsey Page [F], one of the Past Presidents. Their hotel for the night was the Park Plaza Hotel, a luxury modern hotel, of which the extensions were designed by Mr. Page.

Washington. The A.I.A. Convention. (13 May.)

Changing planes at New York, Mr. Cross and Mr. Spragg reached Washington, after a considerable delay at New York owing to fog and minus baggage which fortunately turned up later, and were met there by Mr. Thomas Wright, of the Washington Chapter, and Mrs. Wright, who were to be their guides during the Centennial Convention of the American Institute of Architects. The two visitors were accommodated at the Shoreham Hotel which, with the Sheraton-Park Hotel, formed the venue for most of the Conven-

tion's activities. The opening assembly took place in a large hall at the Sheraton-Park Hotel. The representatives of the architectural societies of other nations gathered in an adjoining room and then to appropriate music and in solemn procession entered the hall together with Fellows of the A.I.A., representatives of national professional and technical organisations, representatives of Federal Government Departments, Deans of the Collegiate Schools of Architecture, University Presidents, Officers of the Federation of Pan-American Architects, Officers of the Union Internationale des Architectes, Hon. Fellows, Hon. Members, Officers and Directors and Past Presidents and Gold Medallists of the American Institute of Architects.

Among the representatives of our British Commonwealth Societies were Mr. Douglas Kertland [F], President of the R.A.I.C., Mr. Ronald Muston [A], President of the N.Z.I.A., Mr. Clive Pascall [F], representing the Architectural Association, and Mr. Robin Boyd, representing the Royal Australian Institute of Architects.

Mr. Cross and Mr. Spragg were seated on the dais with a select group of distinguished members and guests. After the National Anthem was sung and Invocation was given by the Rt. Rev. Angus Dun, Bishop of the Episcopal Diocese of Washington, the Convention was formally opened by Mr. Leon Chatelain, Jr., President of the American Institute of Architects. Then there was choral music by the U.S. Navy Band Sea Chanters.

Mr. Cross then formally presented the illuminated address of greeting and congratulations to the A.I.A. from the R.I.B.A. Presentations were also made by representatives of the Danish Architectural Association, the Philippine Institute of Architects, the Japanese Society of Architects, and the Architectural Association. A wise, stimulating and witty address was given by Dr. Edward A. Weeks, Jr., editor of the ATLANTIC MONTHLY. It was a most impressive function.

14 May. At the morning session papers were read by Dr. Detlev W. Bronk, President of the National Academy of Sciences, on *The New World of Technology*, and by Mr. Paul G. Hoffman, representative of the United States to the General Assembly of the United Nations, on *The New World of Ideas*. Then followed the opening lunch, at which the number present was tremendous. Grace was said by the Rt. Rev. Monsignor John K. Cartwright, Rector of St. Matthew's Cathedral. President Chatelain then gave his address, which centred on the housing situation in the United States and the necessity for architects to take a more active part in the work of housing the more impecunious members of the community. In the afternoon papers on *The Environment and the Individual* were given by Dr. George H. T. Kimble, Director of Twentieth Century Fund, Survey of Tropical Africa; Dr. Paul Tillick, University Professor, Harvard University, and Dr. Mildred C. McIntosh, President of Barnard College, Columbia University.

In the evening Mr. Cross and Mr. Spragg,

with Mr. Ronald Muston, were the guests at dinner of Mr. and Mrs. Van Keuren; they then went to President Chatelain's reception at the National Gallery of Art and the opening of the exhibition *100 Years of American Architecture*, a most attractive exhibition. Music was played by the U.S. Marine Band.

15 May. Addresses during the morning session were given by Mr. Bennett Cerf on *The Arts in Modern Society*, Miss Lilian Gish on *Government and the Arts*, by Dr. Howard Mitchell of the National Symphony Orchestra, and the Hon. Homer Capehart, U.S. Senator from Indiana.

After a short sightseeing tour of the city, Mr. Cross and Mr. Spragg, with Mr. Douglas Kertland and Mr. Arthur Paine [F], were the guests at lunch of Mr. Glenn Stanton [H.C.M.], at the Cosmos Club, an interesting period building which was formerly a private mansion. In the afternoon the two visitors, with many others, took part in a cruise down the Potomac to Mount Vernon, the home of George Washington. President Chatelain was piped ashore, and assembled there was a band of youngsters, dressed in the picturesque costume of the period, playing old English airs.

President Chatelain laid a wreath on the tomb of George Washington, then the house and other buildings were inspected by a large number of architects and their ladies. During this cruise, and at all the previous functions Mr. Cross and Mr. Spragg attended, they talked to literally dozens and dozens of American architects and their wives, and were made to feel very genuinely welcome; everyone was exceedingly kind and welcoming.

16 May. All the guests from foreign architectural societies were invited to a Press interview in the morning at the Sheraton-Park Hotel, in a room quite inadequate for the numbers present. Most of the questions were addressed to Mr. Mordvinov from the U.S.S.R. In the afternoon Mr. Glenn Stanton [H.C.M.] took Mr. Cross and Mr. Spragg for a drive to see the Arlington National Cemetery and the Custis-Lee Mansion, the national memorial to Robert E. Lee. This is a lovely old house, built in the early 1800's and beautifully furnished. After stopping to see the grave of the 'Unknown Soldier' the two visitors called at the Octagon, the home of the American Institute of Architects. The Octagon itself is now a museum, although for very many years it was used as the administrative headquarters of the Institute.

The convention dinner was held at the Sheraton-Park Hotel, some 2,400 being present, many being accommodated in the gallery. President Chatelain presided, and grace was said by the Rev. E. G. Latch, pastor of the Metropolitan Memorial Methodist Church. After dinner President Chatelain introduced the guests from the other architectural societies and then the newly-elected Fellows of the A.I.A. It is the custom over there to stand and bow when one's name is called out. Then followed the presentation of the A.I.A.

Gold Medal to Mr. Louis Skidmore and the Centennial Gold Medal of Honour to Mr. Ralph Walker [H.C.M.], who both made appropriate speeches of thanks. Mr. Henry R. Luce, editor-in-chief of TIME, gave an address on the theme *Good Architecture is Good Government*. After the announcement of the election results of the officers of the A.I.A. the proceedings closed shortly before midnight. Mr. Cross, who has been elected an Honorary Fellow of the A.I.A., wore his medallion and collar at the dinner.

17 May. In the morning Mr. Cross and Mr. Spragg called at the British Embassy where they signed their names in the visitors' book. At the Awards Lunch, held on the terrace at the Shoreham Hotel, President Chatelain presided and grace was said by Rabbi Norman Gerstenfeld. After lunch various presentations were made, including that by Mr. Cross to President Chatelain of his diploma of Honorary Corresponding Membership of the R.I.B.A. The highlight was the presentation to three young Spanish architects of the first R. S. Reynolds Memorial Award for the architectural use of aluminium, consisting of a plaque, a piece of sculpture and a substantial number of dollars. At the afternoon session a film, *Architecture 1977*, was shown and an address on *A New Century of Architecture* was given by Pietro Belluschi, Dean of the School of Architecture and Planning of the Massachusetts Institute of Technology. Mr. Cross and Mr. Spragg had a private party in the evening to say 'au revoir' to some of their kind friends.

18 May. Their personal host, Mr. Thomas Wright, called for the two visitors at a fairly early hour and took them to the airport, where they embarked for Montreal via New York, and so ended their participation in a memorable convention which will certainly live in their memories for the rest of their lives.

Montreal. (18 May.)

Two old friends, Mr. John Roxburgh Smith [F] and Mr. Henry Ross Wiggs [F], greeted Mr. Cross and Mr. Spragg at Montreal airport and took them to the Ritz-Carlton Hotel. In the evening they were the guests of Mr. and Mrs. Roxburgh Smith at a 'Soirée Canadienne au Château de Ramezay.' The château is an old, historic building erected in 1705 as the official residence of Claude de Ramezay, eleventh Governor of Montreal, and now used as a museum containing fascinating exhibits of early Canada. It is now under the care of the Antiquarian and Numismatic Society of Montreal; Mr. Roxburgh Smith is a member of the governing body. Before sitting down to a 'Souper Canadienne' in the stone-walled, stone-floored basement the two visitors partook of unusual cocktails in one of the elegant rooms on the ground floor. The 'Souper' consisted of appetising and ample French-Canadian dishes. After dinner there was a concert including French-Canadian folk songs, later followed by dancing.

(To be continued)

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 4040.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.

The Director: The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.

The Director, the British Standards Institution, 2 Park Street, London, W.1.
Telephone: Mayfair 9000.

The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 lines).

The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

Glued Laminated and Connected Timber.

In the paper read before the British Architects' Conference at Oxford, Mr. J. C. Eastwick-Field [A] said, 'Wood suffered an eclipse after the Great Fire because it burned too readily, but has always sought to regain a place both as a structural material and for cladding: at the moment it is much in fashion.' It is indeed much in fashion, judging from descriptions of timber buildings and from manufacturers' literature; among the latter being a brochure published by the Rainham Timber Engineering Company Ltd., of Ferry Lane, Rainham, Essex. The brochure deals with construction in glued laminated and connected timber and contains useful information about both types, with illustrations.

It is always interesting to learn the reason which supports a factual descriptive statement, and instead of merely stating that glued laminated timber members are practically free from distortion, the R.T.E. brochure says, 'Timber will not glue if the moisture content exceeds 15 to 18 per cent. The individual laminae, being thin boards, are readily seasoned to this moisture content and seasoning or kilning defects are eliminated before glueing. At this moisture content very little further shrinkage, warp, splits or shakes can be expected under normal conditions. Movement of one lamina will be resisted by the next, and a very stable member results, which is practically free from distortion.' The brochure also states that glued laminated timber structural members compare favourably with steel or concrete stock components of equal strength and are much cheaper than specially-designed members in those materials.

The company's R.T.E. folding roof truss for house construction is prefabricated under factory conditions and on arrival at the site it is necessary merely to swing the members of the folded truss into position and insert two bolts to make the ridge joint. The single-piece struts—shouldered to receive the purlins—are bolted to their rafters, but their feet rest squarely on the ceiling joists between the double-piece queen ties, and as they are there restrained by spreaders the load on the struts is transmitted to the ceiling joists without the need for bolts or connectors. The basic feature of the R.T.E. truss is that rafters,

struts and ceiling joists are in parallel plane and in face to face contact at the joints. 'Connector joints in house trusses', the brochure asserts, 'are tricky to make under site conditions . . . connectors develop their full strength rating only when wholly and squarely embedded in the wood. With hand tools, or even power-assisted tools, it is very difficult to attain good connector joints, and the weakness of such joints may not become apparent until a much later date.'

Those interested in receiving the brochure should write direct to the company.

Outdoor Electricity Meters. Several of the papers read at the 9th British Electrical Power Convention, held at Eastbourne last June, were naturally of a very technical nature and outside the strictly architectural field, but there was at least one that seems deserving of consideration by housing authorities and indeed by everyone designing or building houses. The paper was entitled *Outdoor Electricity Meters* and was read by Mr. G. F. Peirson, Deputy Chairman of the Midlands Electricity Board, and Mr. J. Henderson, Chief Engineer of the South of Scotland Electricity Board. It dealt with developments in which the electricity meter can be read from the outside of the house, a practice which is extensively carried out in America, but so far has not been adopted to any extent in this country, perhaps because prepayment meters are still in use here, whereas in America they are virtually unknown.

The first development in this country comprised a cast iron box suitable for building into the thickness of the wall of a house while under construction; it accommodated a normal indoor type meter and was developed in conjunction with an architect of a local authority. A more recent development was a fibre-glass meter box taking a standard indoor type meter but suitable for mounting on the outside of a house some 5 ft. above ground level. The box had an armour glass or perspex window, the internal wires being passed into the house through a lead-in tube built into the wall. In the case of a mains overhead service the service wires would be brought down the side of the house behind the meter box; if underground, the mains

service cable would be brought up the wall into the bottom of the meter box.

In these days when many houses are left vacant during the day, either because both husband and wife go to work, or the wife is out shopping, it would surely save the meter-reading inspectors from wasting time in fruitless endeavours to gain admittance to the house if they could read the meters from the outside.

Fire at the Jaguar Works. In the May JOURNAL (p. 280) mention was made that the Fire Protection Association expected to be able to present a full report of this fire in their July issue. This has now been published, the F.P.A. Journal number being 38. One paragraph in the report states that 'At about 7.00 p.m. two acetylene cylinders burst. Fortunately no one was injured; the explosion brought down part of the roof and provided ventilation for the fire. This helped to disperse the smoke and allowed firemen to see and appreciate the situation more clearly.'

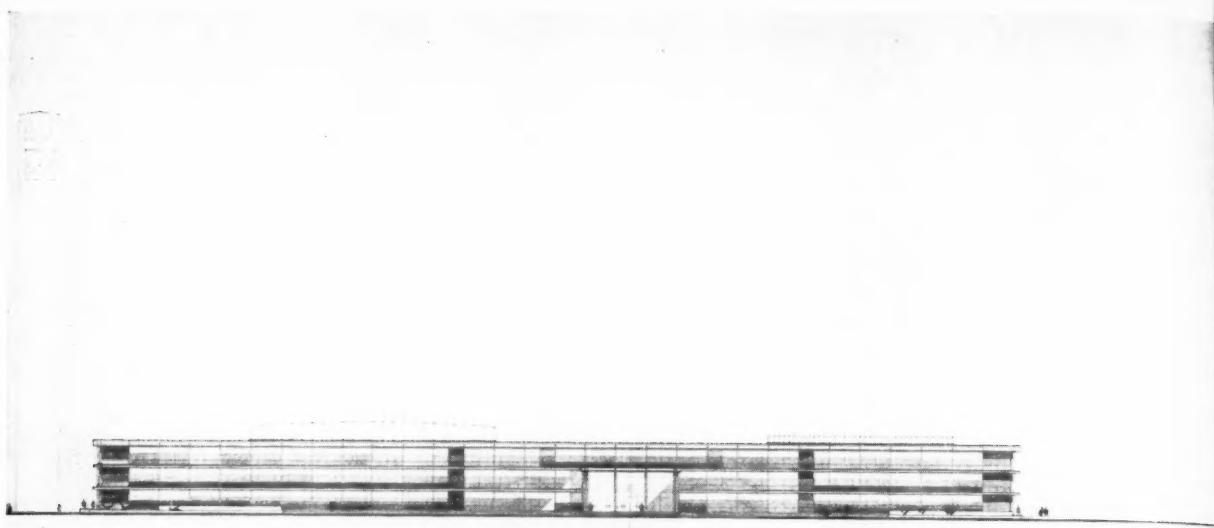
In the report on the experimental fire conducted by Cape Building Products Ltd. at their Cowley Bridge works, mentioned in the July R.I.B.A. JOURNAL, it was stated that 'The Colt heat and smoke exhausts effectively and quickly cleared the fire compartment of smoke'. The F.P.A. report bears witness to the usefulness of smoke vents in a roof. The offices of the F.P.A. are at 15 Queen Street, London, E.C.4.

T.D.A. Symposium. The Timber Development Association have arranged a symposium on the uses of timber; it will be held at Lodge Hill Residential College, Pulborough, Sussex, from 11 to 15 October next. Professor Sir A. E. Richardson [F] has consented to read a paper. The symposium has been designed to give practical information to architects, engineers and surveyors on the structural use of timber and plywood. Papers will deal with qualities and grading, specification, moisture in wood, durability and preservation. Talks and discussions are intended on the physical and mechanical properties of timber, the properties of adhesives, the application of timber and plywood to structures, and developments in timber engineering.

Further details can be obtained from the Regional Officer, T.D.A. Ltd., 8 St. George's Place, Brighton 1, Sussex.

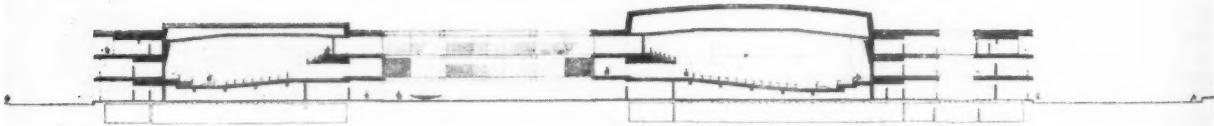
Basic Building Module. The British Standards Institution announce that at a meeting in Paris in June a sub-committee of the International Organisation for Standardisation (I.S.O.) reached unanimous agreement as to the size of basic module and its use in the co-ordination of building components. The basic module recommended is 4 in. for countries using the inch system of measurement and 10 cm. for metric countries.

The sub-committee's main committee agreed to submit the new modular co-ordination proposals to all member-countries of I.S.O. for their comments and approval before they are issued as an I.S.O. recommendation.



A PARLIAMENT HOUSE.

9

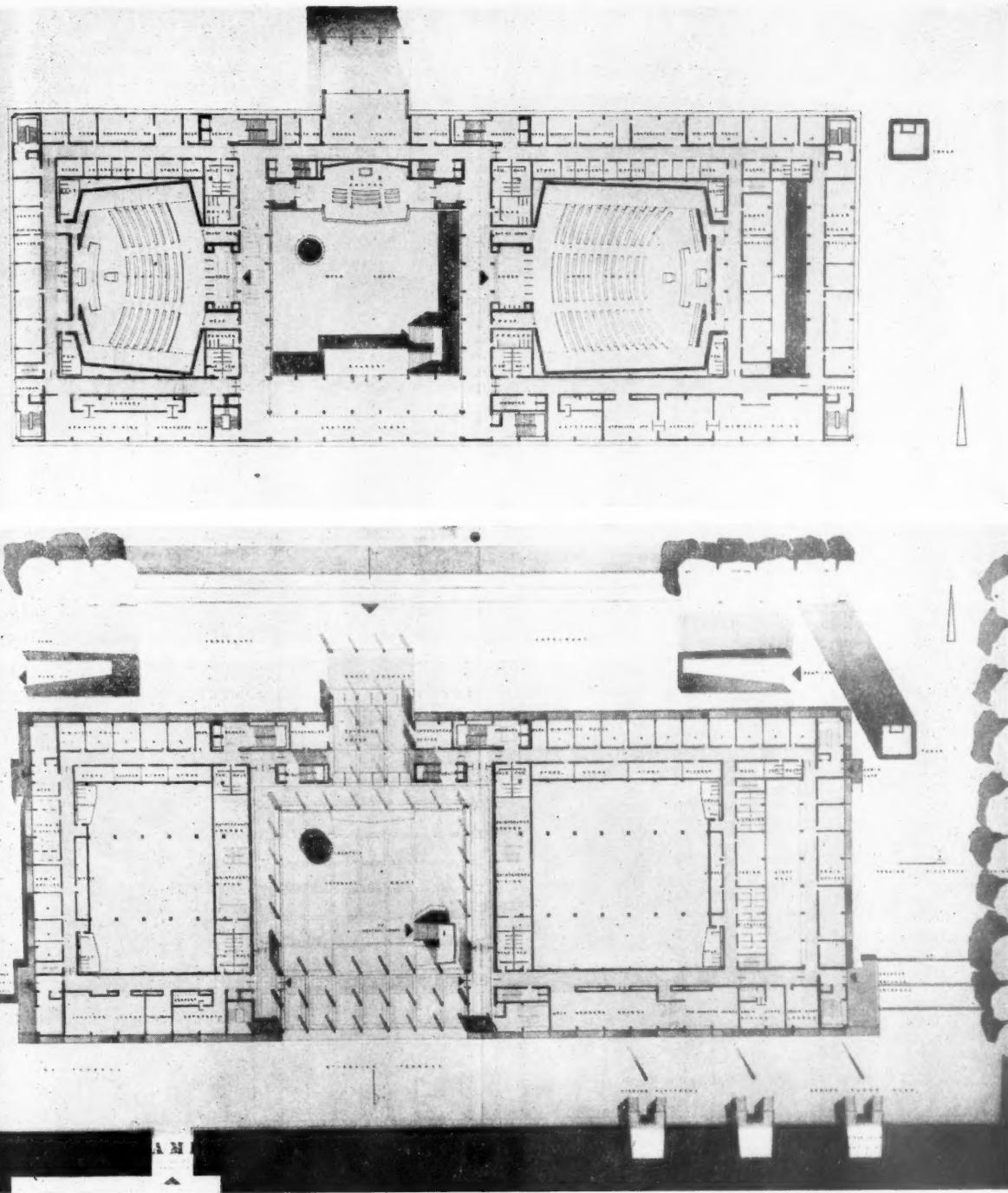


A PARLIAMENT HOUSE.

The Rome Scholarship in Architecture, 1957. The subject for the final competition was a 'Parliament House' in the capital city of a Crown Colony in the northern hemisphere, which has recently achieved Dominion Status. The site is on the north bank of a non-tidal river and measures 800 ft. along the river and 400 ft. in depth from the river to a major road.

The Parliament House is to contain two Chambers of unequal size, the Senate and the Lower House, each having its own ancillary accommodation. The Committee Rooms will be used jointly, and voting will take place within the Chambers so that Division Lobbies are not required.

The climate of the Colony is equable and does not call for any special precautions against sun, rain or frost.



The Faculty of Architecture of the British School at Rome announce the award of the Rome Scholarship for 1957 to Mr. Roelof Sarel Uyttenbogaardt, B.Arch. (Cape Town).
 Mr. Uyttenbogaardt, who is 24 years of age, completed his architectural course at the University of Cape Town in 1956, receiving a First Class with distinction. He lives in Northern Rhodesia.
 Four sheets of Mr. Uyttenbogaardt's design are reproduced.

Crown
 river
 cillary
 hobbies

Messrs. David Greig Ltd., St. George's Street, Canterbury

Architects: Robert Paine & Partners [AA]

THIS BUILDING was awarded the Architecture Bronze Medal in the area of the South Eastern Society of Architects for the three-year period ending 31 December 1956.

Messrs. David Greig's shop at 23 St. George's Street, Canterbury, replaces one destroyed in the blitz and occupies virtually the same site rationalised in conformity with L. Hugh Wilson's plan for the central area. It was commissioned in 1952 at a time when local feelings were running very high against contemporary design. Save for the new Woolworth block standing in massive isolation and Ellis E. Somake's Dolcis store, which had been likened by its detractors to a monkey house, the surrounding area was a blank desolation. The eye of faith alone could discern reason in what was happening and in Canterbury faith, except in a minority, was notably lacking. Fortunately the clients had it in full measure; with negligible reservations they accepted the design without demur. For Canterbury this was an undeserved good fortune since in absolute contrast to the usual Queen Anne front and Mary-Ann-in-depth back this was conceived as a building to be seen on three sides with emphasis particularly on the flank which makes an elevation to St. George's Square. Here the architects felt should be a portico-like effect lending scale and vivacity to an important feature of the city plan, acting as a foil to the old church tower and yet harmonising with the small elements which are the main note of the Canterbury street picture. For this reason the shop was created as a pavilion, facing the square, compositionally separated from the taller core block whose function was to carry through beyond it the rear wall of the square and to draw into the picture the cliff-like flank wall of Messrs. Woolworth. At the rear the tall block again, while helping to create a backdrop to the parking court beyond, by joining on to its neighbour, formed a pocket in which the warehouse and its minuscule garage and entrance pavilion might nestle.

In short, thanks to the clients' forbearance, what to them was primarily an important business asset became equally a vital and necessary key part of the civic design.

Essential to the concept was the form of the roof vaulting lightly and perceptibly from the colonnade to the great wall of Woolworth's. Its serrated form, reintroducing the vital gable element, caused consternation and the design was rejected. Voted upon eventually by the City Council it was accepted by eleven votes to nine. Even then it was abused, being likened by some mysteriously to Victoria Station and by others to a range of pigsties.

Today the lightness of its form, its luminosity and the airiness of its interior, by contrast with the cavernous nature of other shops, appear to win an unconscious response from the crowds which frequent



it. By day it draws into itself a wide arc of the sky and at night lends its own light generously to the surrounding darkness.

Plan. The building comprises the shop and arcade, meat preparation room with two cold stores, warehouses and dispatch room, two garages and enclosed yard, all at ground

level; staff room and lavatories for men, staff room and lavatories for women, kitchenette and manager's office on the first floor; flats each with living room, kitchen, three bedrooms, bathroom and w.c. on second floor and third floor; roof tank house; and basement with heating plant and further store-rooms. There are

two staircases: one connecting the staff entrance to the staff quarters and basement; the other giving independent access direct from Canterbury Lane to the flats. At the entrance to the flats small outside stores are provided for tenants' dustbins.

Construction. The shop has a 3 in. thick reinforced concrete folded slab roof which spans between the party wall and the circular columns of the arcade. The sides, mostly glass and wood framing, do not support the roof. The tall centre block has a reinforced concrete frame with floors of similar material constructed without internal beams so that all the ceilings are flat. Apart from the large windows the walls are of brick, either plain or faced with marble, or rendered with stonite. The marble is Italian Travertine. The columns of the arcade are faced with ceramic mosaic and capped with copper. The warehouse and garages have brick supporting walls and reinforced concrete roofs.

Facings are hand-made sand-faced Dorking bricks. The shop fascia is Westmorland green slate and the separate pieces are the biggest produced by the quarry. All roofs are insulated against the passage of heat with a thick rendering of foamed slab and are dressed with white Derbyshire spar. The waterproofing is asphalt save over the garages where a green mineral-surfaced felt has been used to harmonise with the other colours since this roof is visible. The visible parts of the shop roof are finished with copper which is weathering green.

The floors of the flats are insulated with glass silk quilt. All painted metal windows are galvanised, and the valance to the arcade is in aluminium.

Heating. Central heating is provided to the shop, offices and flats by means of an Ideal gas boiler, which is fully automatic and thermostatically controlled by means of Setchwell Regulators. Conventional radiators are used in the offices and flats but the heating of the shop is by means of pipes embedded in the floor. Hot water is provided by independent gas and electrical installations for each part.

Lighting. The lighting of the shop is of particular interest. For the most part it is indirect, being reflected back from lights on the walls off the ceiling splay into the shop generally.

There is a concentration of direct lighting at the back of the shop on to the provision counters.

Shop finishes and equipment. The shop floor is of black and white vitreous tiles with glazed tiling to walls and counter front. The remaining wall surfaces are finished with flat paint. Provision shelves and counters are Sicilian marble. The whole of the counter and wall fittings have been specially designed in polished Lagos mahogany with brass fittings. The cash desk has a perspex enclosure. In accordance with the firm's latest practice there are no window beads but specially designed moveable metal and glass display units are provided. There are two refrigerated display cases. All counters are provided with

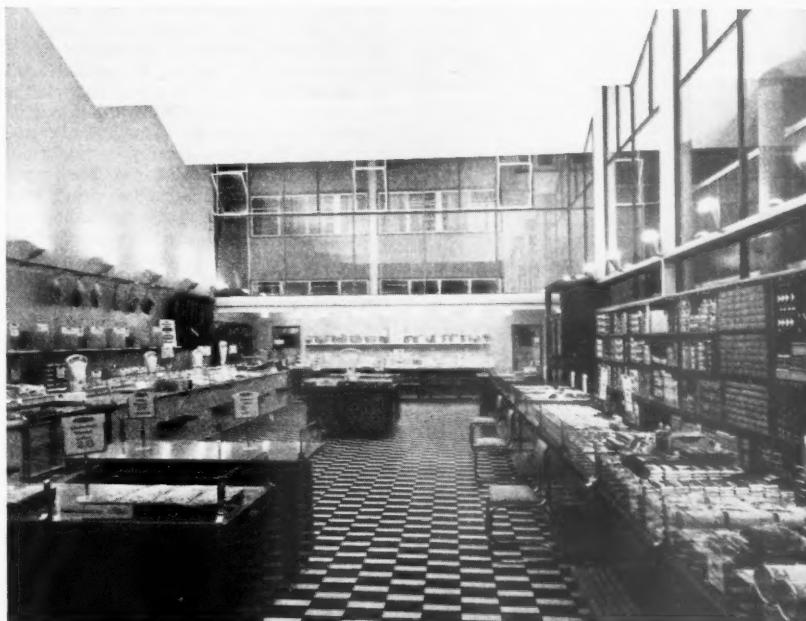
hygienic metal and glass guards to conform to the most recent health regulations.

Other finishes. The whole of the building has been fully decorated in plastic emulsion

be seen until after completion of the square opposite. The preparation of plans, details, specifications and bills of quantities took one year and a further year was occupied



Two views of the interior showing lighting and fittings. The shop was completed in 1953



paints and distempers, regard being paid throughout to the interests of hygiene. The colour schemes have been specially worked out by the architects to suit varying conditions, degree and kind of sunlight, type of use, etc., and curtains to match have been chosen by Messrs. Greig.

Design and Erection. The building was designed to conform to the general outline of the plan for the Central area redevelopment; its full effect in that respect will not

in construction. Every aspect of the work was planned in advance and everything was designed specially for the job. One hundred and nine drawings were prepared.

The large thistle emblem is in beaten aluminium from a full-size plaster model made by Mr. W. C. Day, A.R.C.A.

The architects were Messrs. Robert Paine & Partners (Robert W. Paine, A.R.C.A. [A], C. W. H. Wright [A], Patrick Brown [A] and Michael R. Crux [A]).

Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. Air-Raid Shelters (Removal). Asked if he would now give authority for the removal of all Anderson shelters still remaining from 1945, and those in Salford in particular, the Secretary of State for the Home Department replied: The removal of Anderson shelters was substantially completed some years ago by most local authorities, including Salford. The removal at public expense of shelters of all types is now considered on the facts of each case, and I can find no grounds for treating any remaining Anderson shelters exceptionally. (4 July 1957.)

Lambeth Bridge House. Mr. Hector Hughes asked the Minister of Works whether he was aware that the effect of the architecture on the South Bank of the Thames, as seen from the Terrace of the Houses of Parliament, was spoilt by his Department's offices at Lambeth Bridge; and if he would take steps to put upon those offices some façade which would be less out of keeping.

Mr. Molson: I note the opinion of the hon. and learned Member. As Lambeth Bridge House is only held by my Department on lease, I have no right to alter the structure. (16 July 1957.)

Tall Buildings. Mr. Gower asked the Minister of Housing and Local Government what was the policy of his Department regarding the institution of limited experiments with skyscrapers in the Greater London area and in the major provincial cities; and if he would make a statement.

Mr. H. Brooke: A number of tall buildings have received planning approval in London and in some of the major provincial cities. Others are under consideration. The factors that have to be taken into account are relationship of the building to neighbouring buildings or open spaces, the effect on skylines, the ratio of floor-space to the site, the impact on traffic and the provision to be made for off-street parking. If all these matters can be satisfactorily resolved, I see no objection to a tall building in the right place.

If by skyscrapers my hon. Friend has in mind buildings very much taller than anything that has yet been approved, I think we have to approach the matter with caution. The factors to which I have already referred would apply, and the difficulty of securing a satisfactory result would increase with the height of the building. But I would not rule out even a very tall building in principle. (16 July 1957.)

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Design of houses and housing estates. Circular 35/57 addressed to local authorities in England and Wales refers to a booklet *Your House on View*. The booklet has been sponsored by the Central Panels Committee, on which are represented the Councils for the Preserva-

tion of Rural England and Rural Wales, the R.I.B.A. and the Institute of Builders.

The booklet states and illustrates some of the principles of good design of individual houses and of housing estates, and the Minister hopes that it will be widely read and studied.

Inquiries about copies of the booklet should be addressed to the Central Panels Committee, 4 Hobart Place, London, S.W.1.

EMPLOYMENT OF ARCHITECTS. In a recent case where the applicants asked for the removal of restrictions on land, the objectors asked that each house should be designed by, and its construction supervised by, a professionally qualified and registered architect, and designed to conform to the amenities of the neighbourhood.

In giving his decision the member of the Lands Tribunal said that whilst he had no doubt that the employment of an architect would be of benefit to all the parties he did not think that this should be made compulsory, as he felt that the objectors had over-estimated the benefit which might accrue to them if that were done. (THE ESTATES GAZETTE, 13 July 1957.)

DAMAGE BY TREE ROOTS. In the case of Davey v. Harrow Corporation, noted in the JOURNAL for May on page 283, it was held that if trees encroach on to adjoining land, whether by branches or roots, and cause damage, an action for nuisance will lie against the owner of the land on whose property the trees stand. No distinction is to be drawn between trees that were planted and those that were self-sown, and it is no defence to say that the damage was caused by natural growth.

It may be important for architects and surveyors to bear this case in mind when surveying a house for an intending purchaser. It would apply to trees on adjoining land and to trees on the property being surveyed. What degree of knowledge is required in a professional man when reporting on a property in such circumstances?

REDUCING THE COST OF BUILDING. The Minister of Works, speaking at the dinner of the Reinforced Concrete Association on 18 June, said he would like to see reinforced and prestressed concrete used to a far greater extent in the British building industry because he was anxious to economise on steel and to keep as low as possible the cost of building.

The Minister went on: 'The Ministry of Works has certainly given fairly full scope to your technique. Even before 1914 we built the Money Order Office in Holloway, among other buildings, in reinforced concrete. During the year ended June 1956, my Department had to design 160 framed buildings of all types. Of these 110 were in reinforced concrete frames. We are building large new Government offices in Whitehall Gardens. The first half was built with a structural steel frame, the second half is of reinforced concrete, and by changing over we estimate that we have saved the tax-payer £150,000.'

'I am sure that progress would be faster if there were more engineers able to design in reinforced or prestressed concrete whom architects could engage for this particular purpose. At present some of the steel companies have departments which are able to produce completely pre-planned structural steel frames for the benefit of architects who need them. I am not sure that an equivalent service in reinforced concrete design is as readily available. I am sure that it is only a matter of time and I know that for those who seek advice, it can be obtained, and indeed many here this evening are able to provide it.'

REGIONAL HOSPITAL BOARDS. Professional and Technical Staffs. The Minister of Health has approved the provisions of P.T.B. Circular 71 relating to increased salary scales and conditions of service for certain of the staff on the Works Organisations of Regional Hospital Boards. The new scales replace, from 1 January 1957, those set out in P.T.B. Circular 66.

STATEMENT BY NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS ON FIRM PRICE TENDERING:

1. The National Federation of Building Trades Employers has given consideration to the decision of the Government to revert to the practice of firm price tendering and to advise local authorities and the nationalised industries to act similarly. The uncertainty of future price trends, particularly in respect of those basic building materials in which the costs of production and delivery are substantially affected by the charges laid down by the nationalised industries, makes it doubtful whether the Government's decision was rightly timed. If, however, the practice of firm price tendering is to be accepted by the industry, the Federation wishes to emphasise to all concerned that, if it is to be successful, certain conditions—to which reference is made in the following paragraphs—must be fully observed by building owners and their professional advisers.

2. Two conditions were attached to the Government's decision, namely, that the estimated contract period should not be more than two years and that the works should be thoroughly planned in advance.

In its Explanatory Notes on the Minister's statement the Ministry of Works laid emphasis on the following points:—

(i) if a contractor is to be able to quote a keen firm price he must be given a clear indication of the work required and also of the time within which the work is to be done;

(ii) any variations of the work after the contract has been placed must be kept to the minimum;

(iii) tenders must be accepted quickly after they have been received.

3. In order that practical application may be given to the above general principles, the Federation wishes to make it clear:—

(a) that the two-year period should be reckoned from the date for delivery of

be fastened and tenders should be open for acceptance within two months, after which they should be subject to confirmation or particular adjustment by the Contractor;

(b) that the expression 'thoroughly planned in advance' as applied to a building contract involves the provision of complete documentation at the stage of tendering, viz.:-

(i) Bills of Quantities prepared in accordance with the principles of the Standard Method of Measurement from the proposed contract drawings.

(ii) A site plan.

(iii) $\frac{1}{2}$ in. scale drawings.

(iv) All such details and drawings as may be necessary to enable the Contractor to commence the Works.

(v) An adequate Specification.

(c) that such complete documentation should be followed by strict adherence to the terms of the contract, especially in regard to:-

(i) The early provision of all further drawings and details necessary for the execution of any part of the work.

(ii) The prompt nomination of sub-contractors and suppliers.

(iii) The issue of Architect's Instructions involving variations.

(iv) The prompt preparation of Accounts, particularly the Final Account.

(v) The issue and payment of certificates.

The Federation agrees with the Ministry's view that firm price contracting, provided it is properly planned and administered, can be of advantage to building owners, who will know more closely in advance the cost of their jobs, and should also tend towards the speedier settlement of contracts and the attainment of more stable trading conditions in the industry generally. The Federation wishes to emphasise, however, that the expected benefits will not be obtained and the experiment of firm price contracting will not work satisfactorily unless the Federation's recommendations, as indicated above, are followed by all concerned. (11 July 1957.)

PRESERVING OUR HERITAGE OF BUILDINGS. Speaking in London on 17 July, Mr. Henry Brooke, Minister of Housing and Local Government, said:

'The Town and Country Planning Act lays on the Minister the responsibility for compiling lists of buildings of special architectural or historic interest. The Act also requires that I must consult with "such persons or bodies of persons as appear to me appropriate as having special knowledge of, or interest in, buildings of architectural and historic interest".'

'The practical effect of the inclusion of a building in the list is that no one may demolish it, or alter or extend it in any way which would seriously affect its character, without having given at least two months' notice of his intention to the local planning authority; and when the planning authority receives any notice of this kind, it must at once inform me. What all this means is that no one can lawfully

begin knocking a listed building about without the local authority and the Minister having been given an opportunity to decide what they wish to do.'

'In the interval of two months, agreement about what can be done is frequently reached between all concerned. Where agreement is not reached, various forms of action are available. If ordinary planning control is not sufficient, the local planning authority or I myself can make a Building Preservation Order. An Order of this sort may require the consent of the local planning authority to be obtained before a number of things can be done, including demolition or interior alterations which are not the subject of ordinary planning control.'

'Hardly less valuable is the supplementary list which the Advisory Committee helps me to compile. This list contains buildings which have architectural or historic interest of some sort, but which the Advisory Committee does not rate high enough to deserve inclusion in the statutory list. The practical effect is that if a local authority receives a planning application to do something to a building on the supplementary list, it will deal with it in the knowledge that it has architectural or historic value, but it will not be under obligation to report the matter to me.'

'The most difficult cases are where the owner intends to demolish a building. No one can effectively stop that happening unless a Preservation Order is made.'

'The decision whether or not to make a Preservation Order lies primarily with the local authority for the area. If the authority wishes to make one, it has to apply to the Minister for confirmation of the Order. If there are objections—and of course the owner will often object—the Minister must hear them, and will generally hold a Public Inquiry before deciding for or against confirmation. It follows from this that he cannot well prejudge the issue by urging a local authority to make a Preservation Order.'

'If the local authority will not make one but the Minister thinks that one should be made, then he can make an Order himself. This means that he is intervening and taking the decision out of the local authority's hands. But in the Minister's hands, it is essentially a default power, and default powers should be seldom used and only where the circumstances are exceptional.'

'Though a Preservation Order may serve to prevent an owner from demolishing a building, there is in the law no power to compel him to maintain it against wind and water.'

'Until lately we frequently had the case of the owner whose whole desire was to maintain a property that had historic or architectural interest, but who did not possess the means to do so. The setting up of the Historic Buildings Council with substantial public money behind it has enabled my colleagues in the Government—the Minister of Works and the Secretary of State for Scotland—to apply at any rate the first aid that is called for by buildings of outstanding merit all over Great Britain which are in danger of decaying.'

MAUSOLEUMS. According to a report in THE ESTATES GAZETTE if it is desired to erect a mausoleum in a cemetery it is necessary to apply to the appropriate authority for permission. It appears that mausoleums have been classified as 'small domestic dwellings' for the purpose of such applications.

It is very convenient to give a meaning to words in order to achieve a certain purpose, but a 'small domestic dwelling' as applied to a mausoleum would perhaps cause the occupants to turn in their graves. 'Small' is a comparative term, 'domestic' indicates belonging to the home or the house and 'dwelling' is a place of residence or abode. Do the occupants of a mausoleum 'reside' there? They certainly do not live there.

Classification leads to difficulties as when, for the purposes of freight, a typewriter is counted as a musical instrument. But would anyone for purposes of construction classify a mausoleum as a building of the warehouse class or a public building? If not then there is only left the domestic class of building, which, applied to a mausoleum, appears to be a contradiction in terms. One wonders how Her Majesty's Judges would interpret such a classification.

LAW CASE

William Lacey (Hounslow) Ltd. v. Davis. Builders' estimates used for purposes exceeding the normal. In this case the plaintiffs tendered in competition for the rebuilding of war damaged premises. The plaintiffs' tender was the lowest and they were led to believe that their tender would be accepted. At the request of the defendant's agent, the plaintiffs calculated the timber and steel required for the purpose of obtaining a building licence. The plaintiffs also submitted an estimate for the notional reinstatement of the war damaged building so that the defendant could negotiate the amount to be paid to him by the War Damage Commission.

The plaintiffs then submitted a revised estimate in respect of new plans, and as a result of the estimates and other information provided by the plaintiffs, the amount receivable by the defendant from the War Damage Commission was substantially increased.

The plaintiffs were then informed by the defendant that he intended to employ another builder to rebuild the premises. Subsequently the defendant sold the premises instead of having them rebuilt.

The plaintiffs claimed damages for breach of contract for the reconstruction of the premises and, alternatively, remuneration on a *quantum meruit* basis in respect of the work done by them, with the exception of the work done by them on their original tender.

The Court held that on the first claim no binding contract was ever concluded between the parties.

On the alternative claim the Court held that a promise should be implied on the part of the defendant to pay a reasonable sum to the plaintiffs for the services ren-

dered by them, because the whole of the work fell right outside the normal work which a builder, by custom and usage, normally performed gratuitously when invited to tender for the erection of a building. It was further held on the facts of the case that the proper inference was that the work was done under a mutual belief and understanding that the building was being reconstructed and that the plaintiffs were obtaining the contract.

Judgment was given for the plaintiffs for the sum of £250 13s. 5d. (1957. *All England Law Reports*, Vol. 2, p. 712.)

Certificates of Practical Building Experience

AS THE RESULT of the experience gained in conducting recent R.I.B.A. Examinations in Professional Practice and Practical Experience, the Board of Architectural Education feel that it is of the utmost importance to ensure that all sections of the certificate of practical experience shall be properly completed. With this in view, the Council, on the recommendation of the Board, have approved the following memorandum, which will be affixed to each certificate of practical experience issued by the Royal Institute.

The Recognised Schools of Architecture which conduct their own Examinations in Professional Practice and Practical Experience have been asked to adopt a similar procedure.

Examination in Professional Practice and Practical Experience

Certificates of Practical Building Experience

There has been some misunderstanding in the past about the certificate of practical building experience which must be completed in respect of every student by his employer before he can sit for the R.I.B.A. Professional Practice Examination.

The intention of this memorandum is to assist both employer and student in understanding what is expected by the R.I.B.A., as it is agreed by everyone concerned that it is only possible for a candidate to take the Examination in Professional Practice after he has had some office experience. From 1 November 1962, two years' experience will be required before the Professional Practice Examination is taken, although twelve months of this may be pre-graduate.

The Board of Architectural Education realise that students fresh from school will not be given sole responsibility for any of the work listed in the attached certificate, but if the scheme is to be successful it is imperative that the employer should see that the candidate has an opportunity during his practical experience period to become familiar with the various activities listed on the form, as they relate to current work in the office. For example, under the heading 'Negotiations with various authorities' the Board would like candidates to

have the opportunity either of preparing the forms required in connection with local authority applications, or studying forms prepared by other members of staff and of visiting local authority offices for the purpose of following the procedure.

Under the heading 'Specifications' it is realised that it may not be possible for a candidate to prepare a full specification, but it is anticipated that he will prepare specification notes to accompany some of his drawings, and the Board feel that he should be given an opportunity of doing this and preparing draft specification clauses, which could be checked by his employer.

The Board of Architectural Education are aware that employers may be able to devote only a small percentage of the total time the candidate is employed in the office towards fulfilling the requirements of the certificate, but they regard the proper completion of the certificate as a matter of great importance. Students are expected to co-operate by devoting some of their spare time to the improvement of their knowledge of office practice and procedure.

It is important that the certificate and this accompanying memorandum should be handed to the employer at the commencement of employment, and that candidates should realise that the Professional Practice Examiners cannot accept forms which are incomplete and which show that the candidate has not had experience in any item listed.

art of the marginal areas, notably the pagan and quasi-Byzantine works of Greater Lithuania before its incorporation with the Polish Crown, and the possible non-Cistercian sources of the square sanctuary

The text is admirably clear and well related to the many illustrations, which form an encyclopaedic record of the greatest value. The bibliography is extensive and the index well designed though weakened by the omission of many artists' names, a loss which should be remedied in a future edition. There is also some confusion in the use of Christian names: e.g. Jacob, James and Giacomo Fontana (pp. 303, 305, 42) all relate to the same man.

In a short notice it is impossible to do more than point out a few of the outstanding buildings illustrated: the refined Gothic churches of Cracow and Wroclaw (Breslau), the noble series of medieval and later town-halls, and the remarkable output of the German Bernard Meretyn (d. 1759), including St. Jur's Slavonic Cathedral at Lwow (1748-64) and the town-hall of Buczacz, two of the finest compositions of Late Baroque. But the deepest impression is made by the achievements of King Stanislaus Augustus (Poniatowski, 1764-95), and above all by the exquisite Palace-on-the-water of Lazienki, one of the few excuses for neo-classicism and a swan-song of European taste to set beside Mozart's Requiem.

JOHN H. HARVEY

Native Housing in South Africa, by D. M. Calderwood. 7 in. x 10 in. 202 pp. Charts, diagr. and illus. in text. South African Council for Scientific and Industrial Research, P.O. Box 395, Pretoria. 1956. £1 10s.

This book, the result of several years' research and practical development work in the field of low-cost housing for urban African workers in the Union of South Africa, is the published form of the author's thesis approved for the degree of Doctor of Architecture of the University of the Witwatersrand. Very attractively presented as a result of a grant-in-aid awarded by the South African Council for Scientific and Industrial Research, the work is a landmark in the published literature on the subject.

It deals with the problems of urbanisation encountered in the under-developed countries, but more especially at the stage where the transition from a peasant to an industrial economy is reaching an advanced stage. This is the situation which exists in the industrial areas of the Union of South Africa, where the housing of African workers presents the classic pattern of an industrial revolution—serious accommodation shortage leading to make-shift expedients which get out of control and produce slums, overcrowding, and generally unhealthy and unpleasant conditions.

Rather than emphasise these problems, the book deals with practical solutions, and herein lies its principal value. For solutions are not easily found. Technically, they resolve themselves into the problem of finding an approach which will result in a decent and socially acceptable standard of housing within the means of the country as

Book Reviews

The Architecture of Poland: An Historical Survey, by Zbigniew Dmochowski, with a foreword by Lionel B. Budden. 10 in. xxvi + 429 pp. including illus. and plans. London: Polish Research Centre. 1956. £3 10s.

This work is a landmark and its first publication in English a fortunate by-product of the war. For the first time Poland is revealed as one of the greater centres, if not of architectural originality, yet of architectural expression. Of her architects, from the Renaissance onwards, a majority were Italian, a fact of outstanding interest due, as the author explains, to the form of Polish society which made architecture an unworthy occupation for the gentry, the only educated class: in the Middle Ages the imported masters had been Germans. But the works of foreign masters on Polish soil did not remain foreign, so strong was eclectic Polish taste and the pre-existing compound of influences from all quarters, which had formed by 1400 a national tradition of force coupled with delicacy.

Mr. Dmochowski's survey includes buildings which, at given times, were within the fluctuating boundaries of the Polish state. This is indeed more than sufficient for a substantial volume but leaves an unsatisfied thirst for information upon the underlying

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technical problem is very often overlaid by
the social problems of adaptation to a new
way of life and new values, in a situation
where earning power remains low (though
rising relatively faster than other sections
of the population) and economic limitations
are therefore stringent.

The book describes the background
studies and research work which were
carried on by the author as head of a team
working within the National Building
Research Institute in collaboration with
other interested bodies, and the principles
derived from these studies. The application
of these principles in two experimental
towns in the Transvaal is fully described
and illustrated. The techniques and standards
which have emerged from these
exhaustive studies of the problem have
since become the basis of current permanent
African housing policy in the Union.

The main points which emerge from Dr.
Calderwood's work are: firstly, that the
method evolved in South Africa sets forth
a valid pattern for an approach to all low-
cost housing, irrespective of its particular
context. This approach may be summed up
in scientific study, embracing the socio-
economic as well as the technical fields;
teamwork in the development of techniques;
and finding valid and workable
solutions within the community's means.
Secondly, it is of peculiar value to all who
are involved in housing work in under-
developed countries, and makes an original
and practical contribution in this field,
dealing particularly with the stage at which
the peasant population is adapting itself to
an urban form of life based upon an industrial
economy. For this reason the standards
described are generally in advance of those
encountered in similar situations elsewhere,
where the degree of involvement in the
industrial pattern is less definite. It may be
said, therefore, that this book represents
pioneering work, suggesting an approach
which other nations in Africa and in other
parts of the globe, where conditions are
basically similar, may well follow. Thirdly,
the book is a valuable basic text, both to the
housing practitioner and to the student and
teacher of housing and town planning; it is
fully illustrated and documented throughout
and, in particular, the case histories quoted
in such detail provide a mine of helpful
information and many valuable suggestions.

PAUL H. CONNELL [A]

Georgian Grace: a social history of design
from 1660-1830, by John Gloag. 10½ in.
xix + 426 pp. incl. illus. Adam and Charles
Black. 1956. £3 10s.

This volume of over 400 lavishly illustrated
pages forms a 'gloagation' of facts and
facets of Georgian England which no
amateur Georgophile should be without.
The obvious appeal to the general reader
is no fault, for the more such books are
enjoyed by him the better, so long as they
do not misrepresent; and this in some
degree is one of Mr. Gloag's faults. Some-

times it is the case with his main subject,
as when he attributes the orderliness of the
18th century street to the 'almost universal
use of the sash window'. At another time
it appears in his reference to the arts of
today. There is good reason for saying
that the uncertainties and political up-
heavals of the present century are reflected
in the products of art, but this is not more
so than the uncertainties and political up-
heavals of the century of his choice; it is,
moreover, not sound criticism to refer to
'the dumb faceless shapes carved by
Henry Moore; the uncouth brutality of
the exterior of the Festival Hall'. This
sort of thing will certainly bring the less
discerning 'Friends of' this and that
rushing to kiss the hem of his garment, but
maybe that is the idea. 'How was it', says
Mr. Gloag in his preface, 'that architects,
designers, craftsmen and their patrons
never seemed to put a foot wrong in the
Georgian period?' Did they not? Mr.
Gloag should look again at some of the
towers of Christopher Wren or, at the
other end of the scale, at some provincial
mishandlings of classic detail, rendered
sacrosanct only by the passage of 200
years. But the book is a mine of information,
diffuse and stimulating, about all
things Georgian, from buildings to bidets
and from aristocrats to strumpets; there is
even a time-table of coaches from York to
London on a June day in 1760.

H. A. N. BROCKMAN [L]

An Inventory of the Ancient Monuments in Caernarvonshire. Vol. i: *East. Royal Commission on Ancient and Historical Monuments in Wales and Monmouthshire.* 10½ in.
x 8½ in. lxviii + 215 pp. incl. illus. +
100 pls. + folding plans. H.M.S.O. 1956.
£3 5s.

The Welsh Commission—which, unlike the
Scottish one, still sticks to its double
adjective 'Ancient and Historical'—breaks
silence after nearly twenty years. The
unwonted absence of an ordinary map—for
which the key maps on the endpapers and
inside, though useful, are no substitute—
makes it difficult to get an overall picture
of the range of antiquities covered. As in
Scottish rural areas, prehistoric monuments
naturally prevail in the total of 680 for the
part county. Architecturally the most
important group treated is the parish and
town of Conway with its castle, church
and neighbouring mansions. Many smaller
houses, however, are surveyed, as in the
Monmouthshire volumes of the Folk
Museum, and there are plenty of useful
plans. The final date-line here is 1750 'as a
general rule' (much later than in the latest
Scottish Inventory), 'with some of later
date', including (e.g.) Conway suspension
bridge of 1822-26. Several refinements in
detail are introduced—footnotes, gathered
conveniently together at the end of items, the
O.S. grid reference, and the year or years
(presumably) of survey. When all three
volumes are out they will make a notable
contribution to our knowledge of the
Principality.

H. V. M. R.

Correspondence

THE ANNUAL DISCOURSE

The Editor, R.I.B.A. Journal

SIR,—Accompanying your report of the
Discourse by Professor Aalto in your May
issue are a number of photographs illustrating
some of his work. If the Discourse is
carefully considered it will be found to be
a rambling and ill-considered collection of
commonplace aphorisms, whilst the photo-
graphs show, first, three pleasant-enough
blocks of good brickwork the like of which
can be found in thousands all over the
world; second, an office building of the
now familiar 'crate-stuff'; third, a quite
ordinary Pensions Building; fourth, another
dreary office building, across the façade of
which the eye wanders unrewarded up and
down without finding a resting-place; and
fifth, a dour, covered courtyard with 'coal-
hole' lighting. The less said about the
bespoke-tailored bio-dynamic house-form'
the better except that the Eskimos solved
this one long ago!

It were better if we looked to South
America or Italy, where structure is brought
alive with colour or covers vast spaces with
soaring audacity. All 'fun-and-games' seems
to have gone from Western architecture,
and it is surely going to be very distasteful
to many modern architects to have to revel
at the Conference in the fantastic and
baroque rooms created by Vanbrugh at
Blenheim.* May the time soon come when
we will have finished with the present
'skiffle-group-wash-board' stuff, much of
which is too easily explained away on
grounds of economy.

Yours faithfully,

KENNETH GLOVER [F]

* The letter is dated 1 July.

PRIA ET SON SUPER MARCHÉ

DEAR SIR,—One of our assistants, Robert
Bridgeman, has returned from the
Continent with this photograph which he
took in Brussels. It occurred to us that you
might be amused to use it in the JOURNAL
marginalia.

Yours sincerely,

ANDREW RENTON [A]
(Basil Spence & Partners)



..... provided that it is done in an unostentatious manner and the lettering does not exceed 2 inches in height
(para. 9 of Code of Professional Conduct)

Notes and Notices

NOTICES

The R.I.B.A. Appointments Department. Members and Students of the R.I.B.A. and the Allied Societies are reminded that the services of the Institute's Appointments Department are available to employers requiring assistants and to assistants seeking salaried employment.

Employers are invited to notify the Secretary of vacancies in their offices, giving details of the work to be done, the qualifications required, and salaries offered.

Assistants should preferably call at the offices of the Appointments Department, but if this is not practicable they should obtain from the Secretary an application form, which when completed and returned to the Institute will enable the Department either to send the applicants particulars of vacancies suitable to their qualifications and requirements or submit their names for vacant posts.

Members and Students seeking official appointments should note that normally these are fully advertised in the weekly professional press, and that therefore the Appointments Department do not as a rule notify them to those on the register.

The Institute will also be glad to advise on most matters concerning architectural employment, including overseas appointments.

Associates and the Fellowship. Associates who are eligible and desirous of transferring to the Fellowship are reminded that as from 1 January 1956 all candidates for the Fellowship will be required to submit to the Fellowship Examiners drawings and photographs or examples of work. Candidates may also be required to attend for an interview, which may however be dispensed with at the discretion of the Fellowship Examiners. The necessary nomination forms may be obtained from the Secretary, R.I.B.A.

Licentiates and the Fellowship. By a resolution of the Council passed on 4 April 1938 all candidates whose work is approved are required to sit for the Examination, which is the design portion of the Special Final Examination, and no candidates will be exempted from the Examination.

Note.—The above resolution does not affect Licentiates of over 60 years of age applying under Section IV, Clause 4 (c) (ii) of the Supplemental Charter of 1925.

COMPETITIONS

Development of the Leith Fort Housing Area. Last day for submitting designs: 30 November 1957.

Full particulars were published in the JOURNAL for June, page 342.

Civic Centre for the Borough of Enfield. Last day for submitting designs: 18 November 1957.

Full particulars were published in the JOURNAL for May, page 287.

International Competitions. A note has been received from the International Union of Architects that the conditions of the following competitions have been approved by them:

Development of Berlin Centre. Last day for submitting designs: 1 February 1958.

Full particulars were published in the JOURNAL for May, page 287.

Quaid-e-Azam Mohammed Ali Jinnah Mausoleum at Karachi. Closing date: 31 October 1957.

Full particulars were published in the JOURNAL for July, page 387.

Auschwitz Memorial, Poland. A competition for the erection of a memorial on the site of the Auschwitz-Birkenau concentration camp, Poland, organised by the International Auschwitz Committee, is open to all artists and architects. It is anonymous and in two stages. Closing date for first stage: 15 March 1958.

The Jury of Assessors includes two architects appointed by the I.U.A., Signor Giuseppe Perugini and Mr. J. B. Bakema. Two representatives have been appointed by the International Association of Art Critics and two by the International Association of Plastic Arts, one of whom is Mr. Henry Moore.

The winner will be charged with the execution of the project or will receive a premium of 500,000 French francs.

Conditions are obtainable from the Secretariat of the International Auschwitz Committee, Weigandhof 5, Vienna, Austria.

Deposit: £1 to be credited to Creditanstalt, Bankverein, Wien.

Last date for applying for conditions: 1 September 1957.

Last date for questions (to be sent to the Secretariat of the International Union of Architects, 15 Quai Malaquais, Paris VII^e): 1 December 1957.

COMPETITION RESULT

Proposed Municipal Offices and Civic Hall, Carlisle.

1st Messrs. Charles B. Pearson & Son [F/A].

The other architects selected to take part in the final stage were as follows:— Messrs. Ryder & Yates [A/A], Mr. H. George Marsh [A], Messrs. Hutchinson [A], Murta [A] and Hall, Mr. F. A. C. Maundier [F], Messrs. Russell, Cole and Bender [A/F/A].

BOARD OF ARCHITECTURAL EDUCATION

The R.I.B.A. Intermediate Examination, May 1957. The R.I.B.A. Intermediate Examination was held in London, Plymouth, Manchester, Leeds, Newcastle, Edinburgh and Belfast from 10 to 16 May 1957.

Of the 420 candidates examined, 149 passed and 271 were relegated.

The successful candidates are as follows:—

Ablitt: A. H.	Chettleburgh: M. J.
Adams: B. J.	Child: J. P.
Allen: (Miss) V. J.	Christie: J. H.
Backhouse: L. C.	Clapp: F. A.
Baldock: A. J.	Clarke: M. G.
Baldwin: R. H. W.	Close: A. F.
Barrett: M. V.	Colegate: J. W. E.
Barry: John	Cooper: M. J.
Bennett: C. C.	Cotton: J. A. R.
Bickmore: G. C.	Crocker: W. C.
Black: F. P.	Curry: W. J.
Blair: D. G.	Darlington: R. N.
Boyd: D. A.	Daubney: P. J.
Breslin: J. F.	Davidson: C. H.
Brown: Ronald	Davies: J. E.
Bunch: H. M.	Dines: A. J.
Burdeett: (Miss)	Dodsworth: P. G.
Audrey	Dolphin: P. J. W.
Burnham: J. D.	Duberley: M. J.
Butler: A. A. L.	Dunin-Borkowska: (Miss) H.
Butler: A. J. T.	Dunseith: K. D. K.
Butler: D. W.	Edwards: G. S.
Butler: J. S.	

Elliott: H. C.	Morrey: M. C. J.
Evans: David	Murray: J. L.
Evans: Royston	Neve: Dennis
Forster: E. A.	Nix: A. R.
Francis: Ralph	North: J. A.
Freeman: (Miss)	North: J. M.
G. M.	Osborne: C. N. M.
Freeman: T. M.	Owen: T. A.
Garside: J. K.	Palmer: J. H.
Glossop: Trevor	Parker: (Miss) E. A.
Grant: T. D.	Parkinson: Cyril
Green: C. P.	Penwarden: John
Green: C. W. D.	Philippou: Andreas
Greenway: J. R.	Phillips: I. W.
Grimshaw: A. J.	Pinnell: P. R. E.
Grimshaw: G. R.	Plested: Alan
Harrington: A. J.	Porter: J. M.
Harris: Robert	Puckrin: F. W.
Haskey: J. E.	Ratcliffe: A. R. L.
Henry: G. K.	Riley: Alan
Heywood: J. W.	Roberts-Jenkins: John
Hillard: A. G.	Robinson: E. E.
Howitt: D. A.	Ross: Gilbert
Humphreys: David	Ryan: W. E. D.
Hyden: G. W.	Schipper: E. H.
Ingham: G. B.	Severn: G. C.
Issac: A. R. G.	Shepherd: M. C.
James: D. V.	Showell: P. W.
Jeffery: (Mrs) Shirley	Southard: A. J.
Jenkins: R. J.	Sprott: T. F.
Jones: Alan	Steel: L. G.
Joyce: M. H.	Stewart: M. C.
Kapuscinski: S. W.	Stone: L. F.
Kay: Bryan	Swallow: I. G. T.
Kear: J. D.	Sweet: C. E.
Killeen: J. G.	Taylor: C. E.
Kite: P. T.	Taylor: N. A.
Langlois: Kenneth	Thompson: Brian
Leverington: Roger	Tindall: J. E. A.
Lezgold: (Miss) J. T.	Turnbull: J. K.
Linacre: Robert	Ungless: W. F.
*Lindley: James	Vanes: L. A.
Liong: R. K. C.	Ventham: J. E. A.
Love: E. B.	Wager: S. J.
McCarthy: A. K.	Walker: B. A.
McCrumb: W. E.	Way: G. G.
Macquisten: M. S.	Whittaker: Donald
Manton: R. S.	Whittle: R. B.
Matthews: R. C.	Wigmore: M. G.
May Li: (Miss) Y. K.	Wrench: David
Merriman: P. C.	Mitchell: Stephen
Mitchell: Stephen	Moon: H. E. D.
Moore: E. A.	Moore: (Miss) Y. S. A.

* Subject to approval of History Thesis.

R.I.B.A. Final Examination June 1957. The Final Examination was held in London, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 19 to 28 June 1957. Of the 392 candidates examined, 197 passed as follows:—

Passed Whole Examination	147
Passed Whole Examination Subject to approval of Thesis	1
Passed Part 1 only	49

197 candidates were relegated.

The successful candidates are as follows:—

Whole Examination	
Abbott: D. J.	Bhuta: B. M.
Amos: B. E.	Blake: C. H.
Babister: B. A. W.	Bobrowska: (Mrs) M. I.
Baker: K. N.	
Barry: James	
Beard: N. W.	
Bedford: A. C.	
Benstead: J. D.	
Bentley: Joe	
Braim: E. L.	

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Brinkhurst: F. R.
Bromley: C. J.
Brooks: B. M.
Brooks: M. A.
Broughton: B. J.
(Distinction in Thesis)
Brown: D. R.
Buckhurst: P. S.
Buckle: J. C.
Burns: E. E.
Button: R. M.
Caneparo: J. P.
Cantwell: F. J.
Car: E. M.
Carroll: G. J.
Chamberlain: Roy
Church: D. G. A.
Clapham: (Miss) J. E. S.
Cowell: P. M.
Dadge: N. J.
Davies: B. A.
Davis: K. S.
Dines: K. G.
Dobson: Victor
Donaldson: W. F.
Downing: Clifford
Drobik: J. K.
Drury: R. W.
Edwards: S. L.
Etherington: T. G.
Fairweather, L. S.
(Distinction in Thesis)
Field: G. H.
Fisher: Alan
Fisher: H. W.
Fraser: N. M.
Freeman: Harvey
Gallimore: A. K.
Gazzard: Donald
Gibbs: V. D.
Gladwell: P. W.
Green: Norman
Groves: A. J.
Gurney: A. E.
Haddon: P. F.
Hammond: P. D.
Hammond: P. R. V.
Hansen: G. V.
Harris: J. A. G.
Hartnell: T. R.
Harvey: J. W.
Higgins: C. P. H.
Hill: Brian
Houghton: R. G. H.
Hughes: T. R.
Hutchings: Anthony
Jackson: G. E.
Jacoby: William
Jadhav: A. S.
Jenner: G. J.
Judd: (Miss) Shirley
Kenzie: R. W.
Ketkar: M. A.
King: (Miss) J. M.
Large: W. E.
Lester: (Miss) A. M.
Lincoln: Frederick

* Subject to approval of Thesis.

Part I Only

Ashbourne: Dennis
Barton: J. R.
Benson: M. J.
Benstead: V. S.
Brealy: F. R.
Bruce: H. J.
Clow: C. A.
Counsell: J. G.

Littler: J. A.
Lock: D. J.
Lubicz-Nycz: Jan
Luke: C. K.
McDougall: J. C.
Malcolm: T. J.
Marsh: Geoffrey
Marshman: A. A. J.
Mason: A. R.
Massey: G. W.
Matten: D. N.
Matthews: A. J.
Mauder: P. L.
Max-Jarzabek: Jan
Middleton: F. D.
Middleton: J. S.
Migallo: Henryk
Milner: John
Mistry: D. B.
Mitchell: J. T.
Mollison: H. D.
Montague: D. J.
Mutter: John
Neylan: M. C.
Nugent: R. G. C.
O'Neill: H. C. (Distinction in Thesis)
Pearlman: Wolfgang (Distinction in Thesis)
Peverley: J. R. (Distinction in Thesis)
Pickering: Alan
Pink: G. M.
Portsmouth: J. H. S.
Pratt: J. T.
Preston: J. R.
Priestley: Geoffrey
Pye: J. R.
Quann: A. G.
Rahim: M. J. A.
Richardson: C. J.
Robinson: V. H.
Rookley: W. P.
Rowland: W. J.
Rumun: Jacek (Distinction in Thesis)
Russell: Barry
Sampson: W. B.
Scoggins: B. K.
Scott: P. S.
Severn: J. A.
Smith: D. Frewen
Snadden: R. W. M.
Spence: R. M. M.
Stapleton: R. C.
Stephens: E. J.
Stevens: P. L.
Stevenson: M. N.
Swann: N. H.
Taylor: Antony
Thornett: R. J.
Thorpe: Percy
Trinder: G. E.
Vincent: D. R.
Watts: K. G. (Distinction in Thesis)
West: G. E.
Wilson: J. K.
Wingfield: Alan
Woolstone: B. S. J.

Jackman: C. B.
Kirk: D. G.
Lamb: John
Lloyd-Davies: A. E.
Misiewicz: Tadeusz
Malcolm: Kenneth
Marsh: Harry
Marshman: R. M.
Pearson: N. A.
Pebody: Michael
Pitcher: Peter
Plummer: J. M.
Powell: A. R.
Rainford: W. L.
Rendle: D. E.
Robinson: A. S.
Rowlands: P. J.

Rye: N. F. G.
Savage: S. K.
Schofield: L. M.
Sealy: Robert
Stott: K. A.
Talbot: M. J.
Tong: D. R.
Tyler: C. J.
Walker: L. J.
Ward: M. J.
Welch: Geoffrey
Whiffin: M. W.
Whitaker: A. D.
White: D. N.
Wilson: S. J.
Wise: J. C.

R.I.B.A. Special Final Examination June 1957.
The Special Final Examination was held in London, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 19 to 28 June 1957. Of the 333 candidates examined, 109 passed as follows:—

Passed Whole Examination	93
Passed Part 1 only	15
Passed Part 2 only	1
	109

224 candidates were relegated.

The successful candidates are as follows:—
Whole Examination

Alston: H. K.
Andrews: Peter
Bain: Andrew
Bain: George
Basing: J. D. A.
Baxter: W. J.
Bird: P. B.
Blythe: A. C.
Bodas: V. V.
Bradford: S. W.
Briggs: H. G.
Bryan: P. C. R.
Caswell: P. H.
Chadwick: Hulme Chowdhury: D. R.
Cove: R. E.
Czezowski: J. S.
Davey: J. W.
Davis: C. F.
Davis: J. D. T.
Deaves: A. R.
Dixon: Thomas Dodridge: John
Dolman: Alan Dowling: J. W.
Downs: (Miss)
Allison
Evans: G. F. H.
Fisher: S. R.
Grom: P. P.
Grundy: C. B.
Haskett: A. S. S.
Haughay: P. J.
Heath: E. B.
James: F. C.
Keep: M. B.
Knowles: K. S.
Larkin: G. D.
Lawrence: R. H.
Luetchford: Hugh McGrath: J. M.
Mathews: Frank Meldrum: A. F.
Michaelian: Haikaz Moiret: P. P.
Hellawell: Michael High: L. G.
Moss: B. F.
Holland: M. G.

Muszynski: Jan
Naylor: B. P.
Neale: N. W.
Ochel: G. M.
O'Keefe: Patrick Orrin: R. A. W.
Packer: R. J.
Parkin: Ronald Pate: J. G. L.
Pepper: A. E. J.
Pestell: L. D.
Peters: A. P.
Prior: (Miss) E. M.
Pritchard: W. J.
Purcell: W. V.
Rainbow: J. A. A.
Redwood: J. N.
Rivers: H. F.
Roe: A. L.
Samuel: R. J.
Scoble: G. J.
Shadwell: K. G.
Sharpe: P. J.
Simpson: Robert Smith: Gerald R.
Smith: John T.
Smith: K. Graham Spiwak: H. J.
Stapleton: E. S.
Stevens: A. F.
Taylor: A. J.
Thompson: H. T.
Tilley: J. C.
Tilley: N. S.
Tucker: D. S.
Walsingham: P. R.
Ward: Cecil
Widdup: George Willis: F. A.
Wood: J. H.
Wood: P. J.
Woodford: E. R. R.
Woolnough: G. J.
Worboys: R. J.
Wormell: A. J. C.
Worth: K. F. G.
Young: J. K.

Part II Only
Henderson: William

Part I Only

Bourne: K. B.
Chalmers: J. A.
Clegg: J. S. D.
De Max: M. M.
Dryburgh: K. A.
Hoppenbrouwers: P. C.
Lees: V. H.

Mlodnicki: A. A.
Morgan: V. J.
Phillott: A. G.
Redmond: Leslie Roberts: R. J.
Robinson: L. A.
Thomas: R. B.
Walsh: William

R.I.B.A. Maintenance Scholarships in Architecture. The following R.I.B.A. Maintenance Scholarships have been awarded for the year 1957–58: An R.I.B.A. Houston Maintenance Scholarship of £125 per annum to Mr. W. G. Marden of Croydon, Surrey. An R.I.B.A. Houston Maintenance Scholarship of £125 per annum to Miss E. Rowen of Medbourne, Leicester. An R.I.B.A. Houston Maintenance Scholarship of £125 per annum to Mr. D. G. Williams of Cheltenham. The Ralph Knott Memorial Maintenance Scholarship of £45 per annum to Mr. D. Codling of Kingston upon Thames.

The Maintenance Scholarships previously awarded to the following candidates have been renewed: Mr. H. M. Cummings (School of Architecture, University of Manchester—R.I.B.A. Houston Maintenance Scholarship of £125 per annum), Mr. D. M. Smith (Department of Architecture, Northern Polytechnic—R.I.B.A. Houston Maintenance Scholarship of £125 per annum), Mr. Nicholas Wood (Cambridge University School of Architecture—R.I.B.A. Houston Maintenance Scholarship of £125 per annum). Mr. Anthony Ellison (Leeds School of Architecture and Town Planning—R.I.B.A. Howe Green, 4th and 5th Year Maintenance Scholarship of £40 per annum). Mr. Roman Halter (Architectural Association, School of Architecture—R.I.B.A. 4th and 5th Year Maintenance Scholarship of £60 per annum). Mr. R. E. Osler (School of Architecture, The Polytechnic, Regent Street, W.1—THE BUILDER Maintenance Scholarship of £75 per annum).

ALLIED SOCIETIES

Changes of Officers and Addresses

Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects, Northamptonshire Branch. Chairman, A. N. Harris [F].

South Eastern Society of Architects, Brighton District Chapter. Hon. Secretary, J. A. Wells-Thorpe [A], 26 Regency Square, Brighton, Sussex.

Aberdeen Society of Architects. President, D. J. A. Ross [F].

East Africa Institute of Architects. President, C. J. Crowe, T. D. [F]. *Uganda Chapter:* Hon. Secretary, E. J. Eccles [L], P.O. Box 559, Kampala, Uganda, E. Africa.

Essex, Cambridge and Hertfordshire Society of Architects. Cricket Match between Hertfordshire Chapter and West Essex Chapter. The second annual cricket match between the Hertfordshire Chapter and the West Essex Chapter of the Essex, Cambridge and Hertfordshire Society of Architects was held on Sunday 7 July at Cottered, Hertfordshire.

The result was a win for Hertfordshire, who scored 198 runs to West Essex Chapter's 97 runs.

Mr. Clifford Culpin [F], Chairman of the Hertfordshire Chapter, thanked Mr. and Mrs. George Matthews, daughter, and members of

the Women's Institute, for the magnificent tea they had provided, and the Chairman of the West Essex Chapter, Mr. J. L. Barnard [A], replied.

South Eastern Society of Architects. Annual Luncheon. The annual luncheon of the South Eastern Society of Architects was held on Saturday 22 June at the Burford Bridge Hotel, near Dorking. The hosts and organisers were the Guildford Chapter. About 183 members and their guests were received by the President of the Society, Mr. Duncan Scott [F] and Mrs. Scott and the President, R.I.B.A., Mr. Kenneth M. B. Cross.

Mr. Cross proposed the toast of the Society and gave a résumé of his recent goodwill mission to Allied Societies overseas. Mr. Scott, in his reply, paid tribute to this great effort and went on to propose the toast of the Guests, among whom were General Sir Robert Haining, K.C.B., D.S.O., J.P., the Lord Lieutenant for the County of Surrey, and Lady Haining; Mr. G. H. H. Nugent, Member of Parliament for Guildford; His Honour Judge A. A. Gordon Clark and Mrs. Clark; Alderman H. K. Kimber, J.P., the Mayor of Guildford, and Mrs. Kimber; Councillor Doris M. Alexander, J.P., Mayor of Kingston upon Thames; Mr. E. Steward Smith [F], President of the Berks, Bucks and Oxon Architectural Association, and Mrs. Smith; Mr. P. H. P. Lovell, M.I.O.B., President of the Southern Counties Federation of Building Trades Employers, and Mrs. Lovell; Mr. P. M. Corsar [F], President of the Hampshire and Isle of Wight Architectural Association, and Mrs. Corsar; the chairmen of the South-Eastern, Southern and South-Western Areas of the London Master Builders' Association; and the chairmen of the Dorking, Chertsey, Walton and Weybridge and the Leatherhead Urban District Councils, with their ladies.

Mr. Nugent and Judge Clark replied for the guests. Afterwards the party visited Guildford Cathedral and then had tea. Altogether it was a happy occasion.

GENERAL NOTES

Management Course—Sundridge Park. A Joint Course in Management, which is sponsored by the Joint Committee of London Architects, Quantity Surveyors and Builders, will be held at the Sundridge Park Management Centre, Bromley, Kent, from Thursday to Saturday, 28 to 30 November 1957. It is hoped that the course will be attended by equal numbers of architects, quantity surveyors, and builders.

The Sundridge Park Management Centre specialises in short courses on the general principles of management and administration which apply throughout industry and the professions. The object of the joint course will be to examine the application of these general principles to the particular problems of the building industry and the allied professions.

The course will consist of a series of lectures on general aspects of management to be followed by discussions in which the subject matter of the lectures will be considered in relation to the building industry. There will also be one or two lectures on specialised subjects more immediately applicable to the industry.

It is planned that the course will begin with an introductory talk by Mr. D. E. Woodbine Parrish, who is a Past President of the London Master Builders' Association, on the structure of the building industry. The draft syllabus also includes lectures and discussions on such varied subjects as economic productivity problems, work and method study, the economics of

Notes from the Minutes of the Council

MEETING HELD 2 JULY 1957

Appointment of R.I.B.A. Representatives.

(a) *R.I.B.A. Architecture Bronze Medal: New South Wales Chapter, Royal Australian Institute of Architects: Jury to consider award for three-year period ended 31 December 1956.* Professor H. Ingham Ashworth [F], President, New South Wales Chapter, Royal Australian Institute of Architects. (b) *British Waterworks Association: Standing Committee on Water Regulations.* Richard Henniker [F] and A. H. Ley [F] re-appointed for year beginning 1 July 1957. (c) *B.S.I. Sub-Committee CEB/6/1: Concrete Blocks and Bricks.* L. A. Butterfield [F].

Direct Election to the Fellowship. Mr. Martin Louis Conrad, F.R.A.I.A., Immediate Past President of the Queensland Chapter, Royal Australian Institute of Architects, was elected to the Fellowship under the provisions of the Supplemental Charter of 1925, Section IV, Clause 4.

New Members and Retired Members of Council. The President extended a welcome to the new members of Council, and on his proposition a vote of appreciation of the services of those members who had retired since the last meeting was passed unanimously.

R.I.B.A. Award for Distinction in Town Planning. The Council approved a recommendation that the R.I.B.A. Award for Distinction in Town Planning be conferred upon Mr. Arthur George Ling [F] and Mr. H. J. Whitfield Lewis [A].

Restrictive Trade Practices Act, 1956. A request from the Registrar of Restrictive Trade Agreements for information from the R.I.B.A. on practices in regard to the supply of structural steel was referred to the Practice Committee for consideration.

mechanisation, management responsibility, contract planning, and executive succession.

The lectures on general subjects will be given by members of the staff of the Sundridge Park Management Centre but it is felt that the success of the experiment will depend to a very large degree upon the nature and calibre of the discussions. Vacancies are available for eight architects on the course and it is hoped therefore that those attending will include one or two senior and experienced members of the profession who will be able to give a lead in these discussions.

The course will last from 11 a.m. on the Thursday to 2 p.m. on the Saturday and the fee will be 20 guineas, inclusive of meals and accommodation, payable on arrival at Sundridge Park. For 'non-residents' the fee will be 15 guineas.

Applications from architects wishing to attend should be sent to the Secretary of the R.I.B.A. and should arrive not later than 20 September 1957. If there should be applications from more than eight members the Executive Committee of the Council will make the appropriate selection.

The Paris Salon. The following members received awards at this year's Paris Salon: *Silver Medal*—C. W. Roberts [F]. *Bronze Medal*—Graham Dawbarn, C.B.E. [F]. *Hon. Mentions*—Sir Thomas Bennett, K.B.E. [F] on behalf of T. P. Bennett and Son, and Bryan P. Westwood [F] of Westwood, Sons and Harrison.

Students. 144 Probationers were elected as Students.

Applications for Election. Applications for election were approved as follows: *Election 8 October 1957:* as Fellows 4; as Associates 46; *Election 5 November 1957 (Overseas Candidates):* as Fellow 1; as Associates 3.

Applications for Reinstatement. The following applications were approved: as Associates: William Patrick Carlin, Donald Stewart McKerchar, Mrs. Margaret Anne Paul, Robert Charles Southwood, Neville Woodbury.

Resignations. The following resignations were accepted with regret: Lyon Balfour-Paul [A], Mrs. Margaret Patricia Frances Hall [A], Mrs. Sylvia Muriel Pickering [A], Mrs. Roma Austral Smith [A], John William Cropper [L].

Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Fellows: Ralph Edward Matthews, James Herbert Somerset, James Guy Warwick; as Retired Associate: William Arnold Batty; as Retired Licentiates: Frederick George Cole, Herbert Seabright, James Dryden Smith.

Obituary. The Secretary reported with regret the death of the following members: Peter Cummings [F], Maurice Kershaw Matthews, O.B.E., T.D., J.P. [F], Bernard Michael Ward [F], John James Bevan [A], Herbert Bartholomew Evans [A], James Miller [A] (Serial No. 1613), Alan Whitehead [A], John Bolton [L], Arthur Oswald Power [L], Reginald Francis Guy Aylwin [Retd. L], James George Flatman [Retd. L].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

Truscon Travelling Scholarship. The Truscon Travelling Scholarship for the study of reinforced concrete work offered by The Trussed Concrete Steel Company Ltd., details of which were given in the JOURNAL for May, page 288, has been awarded to Mr. Ronald Sims, A.A.Dipl. [A], of Bournemouth.

Mr. Sims will be accompanied by Mr. Neville H. Jones of the company's staff to whom a similar scholarship has been awarded.

R.I.B.A. Cricket Club

R.I.B.A. v. Blue Circle Cricket Club, 10 July 1957. This match was played at Bromley. The Blue Circle batted first and declared at 186 for 5, largely due to some excellent batting by A. Golton (49) and A. Lowen (65). D. L. Robinson took three wickets for 63.

Although heavy rain at the tea interval slowed down the outfield, the R.I.B.A. only just failed to get the runs in less than two hours, scoring 164 for six wickets. The chief scorers were: A. E. J. Morris, 32; A. Marlow, 29; C. G. Banfield, 40; and S. Sharma, 39 not out. For the Blue Circle, Jeffreys took three wickets for 61.

R.I.B.A. Golfing Society. The annual match with the Royal Institute of Chartered Surveyors' Golfing Society was played on 24 July at the New Zealand Golf Club, Woking. The match resulted in a win for the R.I.B.A.G.S. by ten matches to five.

Obituaries

Percy Douglas Geall [L] died on 17 July 1956, aged 68.

Mr. Geall started his architectural training with the Borough Surveyor of Bognor Regis. From 1908 to 1914 and after war service, he was architect to Messrs. Whitehead and Whitehead of Chichester and Bognor Regis. He was chiefly concerned with planning local estates and houses, hotels and public houses.

Alfred Eustace Habershon [Retd. F] died on 19 December 1956, aged 90.

Mr. Habershon was articled to Mr. George McDonnell whilst studying at University College and Regent Street Polytechnic, London.

In 1890 he started practice on his own account.

Among Mr. Habershon's works were the Church of the Ascension, Plumstead, Kent; the Capital and Counties Bank (now Barclays) at Woolwich; and the Baptist Tabernacle, Baring Road, Lee, London, S.E.12.

David Harold Lewis [A] died on 24 September 1956, aged 46.

After receiving his training at the Cardiff School of Architecture, Mr. Lewis commenced practice in Eastbourne in 1935. A year later he went to Oxford and in 1939 to Southampton, where he returned after the Second World War. In 1947 he entered into partnership with Mr. Thomas Gibb [L] in Port Talbot, Glam.

The principal works with which he was concerned were the College of Further Education, Port Talbot, a clinic at Port Talbot and hospital extensions at Neath and Swansea, and an office block in Cardiff, as well as shops, public houses and domestic architecture.

George Grey Wornum [F] died on 11 June 1957, aged 69.

Mr. Wornum, who was a descendant of Ralph Nicholson Wornum, Keeper and Secretary of the National Gallery, 1812-77, and the son of George Porter Wornum, M.D., was educated at Bradfield College and the Sade School. He also studied at the Architectural Association, London, where he won the Travelling Studentship and Silver Medal in 1909. After serving his articles with his uncle, Mr. R. Selden Wornum [F], and working for a year with Messrs. Simpson and Ayton, he started private practice in 1910, when his first professional work was a studio for Mr. H. G. Riviere. During the First World War he served with the Artists Rifles and The Durham Light Infantry, when he was wounded on the Somme and lost his right eye.

After 1919, Mr. Wornum went into partnership with Mr. P. D. Hepworth [F] and their work included alterations to many City and West End premises, a water garden at Hayling Island, and the yacht *Nyria*. Then he joined Mr. Louis de Soissons, A.R.A. [F], in partnership. With Mr. de Soissons he was architect for several of the Haigh Memorial Homes at Morden, Liverpool, Sheffield, Warrington and Penzance; Larkhall Estate, Clapham; Mansfield Boys' Club, Canning Town; Offices for Venesta, Vintry House; Bellometti's Restaurant, Soho Square (since demolished); and a dance hall in Derby.

In 1932 Mr. Wornum won the competition for the new R.I.B.A. building in Portland Place. Four years later he was one of the three architects appointed to organise the decorations of London for the coronation of George VI. In the same year he was appointed decorative architect for the passenger accommodation in the Cunarder *Queen Elizabeth*. Other

notable work included the British Girls' College at Alexandria, Egypt, in 1935; the convalescent home of the Hearts of Oak Benefit Society at Joss Bay, near Broadstairs, in 1937; and the Central Cleansing and Transport Depot building for the City of Westminster, which won the R.I.B.A. London Architecture Bronze Medal in 1938. With Mr. A. C. Tripe [F], he was responsible for a greyhound racing stadium at Clapton, flats at Kensington and Lambeth and in Birmingham, and houses in Bayswater; housing schemes in Dorking and Lambeth and in Coventry with Mr. Richard Sheppard [F]; shops for the Gas, Light and Coke Company at Leytonstone, and an office building for the Electricity Authority, Surbiton.

During the Second World War he was appointed Assistant Director (Standards) in the Directorate of Post-War Building. In 1950 he entered into partnership with Mr. Edward Playne [F]. Amongst his post-war work were municipal housing for various London boroughs and the replanning of Parliament Square in 1950.

Mr. Wornum was a member of the R.I.B.A. Council for many years, a Vice-President from 1950-51 and Royal Gold Medallist in 1952. He was also a former Hon. Secretary of the Art Standing Committee and member of various other committees. From 1930-31 he was President of the Architectural Association; and he was also an Honorary Fellow of the American Institute of Architects. He was made a C.B.E. in this year's Birthday Honours.

During his early years in practice, Mr. Wornum had been Reader to Herbert Batsford and editor of some 5,000 plates, photographs and excerpts from old books for a series of books on architectural details, chiefly of the 18th century. A number of his measured drawings are included among the illustrations in *The Smaller English House of the Later Renaissance, 1660-1830*, by A. E. Richardson and H. Donaldson Eberlein. He was also part author of *Housing, a European Survey by the Building Centre*, and (with Mr. John Gloag [Hon. A]) *House out of Factory*.

In recent years, Mr. Wornum had become severely crippled and for health reasons had gone to live first in Bermuda and then California.

Mr. Louis de Soissons, O.B.E., R.A. [F], writes:

'I first met Grey Wornum in 1919 after the general demobilisation. Owing to his serious head wound he had been on light duty in some branch of the War Office. By the time I was free he had restarted in practice and he and Philip Hepworth were occupied on a variety of jobs together.'

'We three at one time shared offices in Gray's Inn and when I was appointed architect to Welwyn Garden City, Grey and I arranged that he should look after the London end of my young and growing practice. This loose, three-cornered arrangement eventually worked into a partnership with Grey. We moved to Blue Ball Yard and the partnership lasted until the depression in 1930.'

'Grey had a facile pencil and his illustrations of Sir Albert Richardson's book on Georgian architecture are well known. This facility stood him in good stead when explaining details to clients; and I well remember an aunt of mine, for whom we altered a house in the country, exclaiming that he should cease sketching as his sketches were so attractive that she would not be able to resist spending much more than she could afford.'

'His good nature and charm of manner, his knowledge of the architectural past and interest in its future, and his willingness to try out new methods and materials, were out-

standing. His work was a reflection of these qualities.'

'His continued youthfulness of manner and outlook were remarkable and made him a most pleasant companion. Our friendship continued throughout, and I was fortunate in that I saw a good deal of him in his later years and enjoyed many long talks, roaming over a variety of subjects.'

'His lively mind and courageous spirit triumphed over his grave physical disabilities, and to be with him was an inspiration.'

Sir Edward Maufe, R.A. [F] writes:

'We are indebted to Grey Wornum for fine building in many different spheres; he enriched our spirit in both public and private buildings, in the housing of the people and in the internal architecture of some of our great ships.'

'Happily, his own buildings themselves constitute a lasting memorial to him, and we architects in particular have in the R.I.B.A. Building a special memorial. In its restrained but spirited beauty it was much ahead of its time. The building is not only admirable to look at outside, but is a masterpiece of internal space. Just to walk about the R.I.B.A. Building is a tonic to any architect and those who work in it have abiding pleasure.'

'A list of Grey Wornum's many buildings has been given elsewhere but his design for Parliament Square must be mentioned here, for this layout is a proof of his genius. The way that the terrace on the north side inflects the Big Ben Tower and the way the tree-lined western terrace leads to the North Transept of the Abbey, both embracing but in no way disturbing the quiet contrasting lawn, represent a most interesting and masterly example of civic planning.'

'As a man he triumphed over his war wounds and was one of the most attractive personalities of his time. Those who were present at the ceremony, when he received the Royal Gold Medal, will ever remember his astonishingly gay and erudite speech of thanks. They will remember too his generous and gracious tribute to Mrs. Wornum to whom we all give our most sincere sympathy.'

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Arthur Arschavir, A.M.T.P.I. [A] has been appointed Head of the School of Architecture at Hull in succession to Mr. J. Alexander Potter [F]. Mr. Arschavir, who is at present a lecturer in the University of Manchester, takes up the appointment in September. The practice carried on under the style of Madsen, Massey and Arschavir will continue as before.

Mr. Eric D. Colley [A] has been appointed a Senior Lecturer in Architecture to the Harris College, Preston.

Mr. R. F. Fairhurst, A.M.T.P.I. [A], has been appointed County Architect, and Mr. A. H. D. Jones [A] has been appointed Deputy County Architect, of Gloucestershire.

PRACTICES AND PARTNERSHIPS

Mr. R. Blain [A] has retired from the partnership of Messrs. T. N. Duncan and Partners,

Johannesburg, South Africa. The title of the firm will remain unchanged.

Mr. G. R. Vaughan Ellis [A] is now carrying on the practice of Venning and Ellis of National Provincial Bank Building, Liskeard, Cornwall, under his own name. He has also recently opened an office at Higher Market Street, East Looe, Cornwall.

Mr. Bernard Engle [F] has taken into partnership Mr. Victor Mayer [A] and Mr. Roland Lancon [A]. The title of the firm will remain as before **Clyde Young and Bernard Engle**, and the address—8 New Square, Lincoln's Inn, London, W.C.2 (HOLborn 1772).

The partnership of **George Fairweather and Partners** has been dissolved by mutual consent. **Mr. George Fairweather** [F] will continue to practise from 28-30 Wigmore Street, London, W.1 (WELbeck 5489/0). **Mr. Eric Rheinberg** [A] and **Mr. Geoffrey L. Cannon** [A] have taken **Mr. David P. G. Morgan** [A] into partnership, under the style of **Cannon, Morgan and Rheinberg**, and will practise from 38a Beaconsfield Road, St. Albans (St. Albans 57596).

Mr. Humphrey H. Goldsmith [F] has taken **Mr. Nigel W. S. Tolson** [A] into partnership. The name of the firm has been changed to **Humphrey Goldsmith and Partners** but the address remains 18 Gay Street, Bath, Somerset. (Bath 60257-8).

Mr. Ronald Leach [A] has begun practice at 163 Canterbury Road, Westgate on Sea, Kent (Thanet 31048) (and at Herne Bay), where he will be pleased to receive trade catalogues.

Mr. S. Douglas Lees [A] has taken over the practice of **Messrs. Whitaker and Gardner**, of 16 Edward Street, Blackpool (Blackpool 21094), and will continue the practice under the same style and from that address, where he will be pleased to receive catalogues, etc.

Mr. William MacDonald [A] has been taken into partnership by **Mr. James C. Montgomery** of 122 Wellington Street, Glasgow, C.2. The name and address of the practice will remain unchanged.

Mr. B. R. Morris [A] has been taken into partnership by **Messrs L. D. Tomlinson and Partners** (incorporating Hedley A. Mobbs [L]) of Pilgrim House Chambers, Boston, Lincs., and Quadrant Arcade Offices, Romford, Essex, and will be resident at Boston. **Mr. J. S. Leslie** [L] has also been taken into partnership. The name and addresses of the firm will remain unchanged.

Mr. W. R. John Northcott [A] has begun practice at 63 High Street, Taunton, Somerset (Taunton 4542), where he will be pleased to receive trade catalogues, samples, etc.

Mr. Alan A. S. Sharp [A] has taken over the practice of **Mr. Rex Thorne** [L], who has moved to Southern Rhodesia, and will practise under the title of **Thorne and Sharp**, at 26 West Borough, Wimborne Minster, Dorset.

CHANGES OF ADDRESS

Mr. Douglas Bernhardt [A] has changed his address to 30 Bedford Row, London, W.C.1.

Mr. S. Beverley [F] and **Mr. Charles W. Reeves, O.B.E., F.R.I.C.S.** [F], of **Messrs. Verity and Beverley**, have moved to new offices at 35 Doughty Street, London, W.C.1 (TERminus 5301).

Mr. Dennis H. Bick [A] has changed his private and business address to 'Wychwood', 131 Bryanston Road, Solihull, Warwickshire (Solihull 4090), where he will be pleased to receive trade publications.

Mr. Peter Blewett [A] has changed his address to Apt. 3, 1170 Davie Street, Vancouver, B.C., Canada.

Mr. Reginald W. Brown [A] has changed his address to 31 Dudley Street, Grimsby, although his telephone number remains Grimsby 2909.

Mr. S. H. Green [A] has changed his address to 7 Stanhope Gardens, London, N.6, where he will be pleased to receive trade catalogues, samples, etc.

Mr. Charles P. Ind [A] has changed his address to 40 Moccasin Trail, Apt. 27, Don Mills (Toronto), Ontario, Canada (Hickory 4-6048).

Mr. Norman W. Lee, D.F.C., [A] has changed his address to 70 Ternhill Crescent, Don Mills (Toronto), Ontario, Canada.

Mr. Alex. S. MacKenzie [A] has moved to new offices at 18 Kilbowie Road, Clydebank (Clydebank 3528), where he will be pleased to receive technical and trade literature.

Mr. V. G. Mackinnon [A] has changed his address to c/o Gibb, Coyne, Sogei (Kariba), Ltd., P.O. Kariba, S. Rhodesia.

Mrs. V. M. Matthews [A] has changed her address to 3 Great King Street, Edinburgh, 3.

Messrs. Albert W. Moore and Son [F] have changed their address to 53 Cannon Street, London E.C.4 (CITY 3151).

Mr. Henry Sinclair Wood, A.M.T.P.I. [A], has moved his practice to 2A Ridley Place, Newcastle upon Tyne, 1 (Newcastle 24125), where he will be pleased to receive trade catalogues, etc.

PRACTICES AND PARTNERSHIPS

WANTED AND AVAILABLE

Associate, young, energetic and experienced, wishes to amalgamate small Sussex practice with another for further development. Box 55, c/o Secretary, R.I.B.A.

Senior Assistant, Dip.Arch. (Cardiff) [A], married, public school, with administrative and general experience in private practice, seeks partnership in small provincial practice, or will consider purchase from principal nearing retirement. Capital available. Box 58, c/o Secretary, R.I.B.A.

Architect wishes to retire and sell his rapidly growing practice in Westminster. Part of the purchase price could be paid out of fees earned. Amount of capital available should be stated. New contracts for which instructions are awaited exceed £1½ million. Write to Box 59, c/o Secretary, R.I.B.A., for appointment, which will be treated as confidential.

Energetic partner required to take over old-established practice in important south coast town. The transfer to be spread over six to twelve months. Box 63, c/o Secretary, R.I.B.A.

Architect trained in Scotland and with 25 years' experience in England, wishes to purchase small practice in a coastal town in Scotland or England. Would consider partnership in practice where principal seeks gradual retirement. Box 64, c/o Secretary, R.I.B.A.

Fellow with old-established practice in West Midland town desires junior partner. Excellent connection and prospects. Box 66, c/o Secretary, R.I.B.A.

Associate (37), experienced in all types of work, seeks partnership in the south, south-west or west of England. Some capital available. Box 69, c/o Secretary, R.I.B.A.

Associate (37) seeks partnership in London, south, or south-west of England. Cambridge

trained. Some capital available. Box 70, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Wanted. Surveying equipment, dumpy level, staff, etc. Box 54, c/o Secretary, R.I.B.A.

For Sale. Antiquarian drawing board, 4 ft. 6 in. by 2 ft. 9 in., and tee-square, with ebony edge in good condition. £4 10s., carriage forward. Box 57, c/o Secretary, R.I.B.A.

Wanted. Three double elephant drawing boards and tee-squares in fair condition. Box 60, c/o Secretary, R.I.B.A.

Wanted. Quicke's dumpy level and tripod and 100-ft. chain. Box 62, c/o Secretary, R.I.B.A.

For Sale. Stanley 14-in. 3-screw dumpy level round tripod. 14-ft. staff, six ranging poles, 100-ft. chain. Price £21. Box 67, c/o Secretary, R.I.B.A.

ACCOMMODATION

Architect, with well-appointed office space comprising 800 sq. ft. in Gray's Inn, desires to share accommodation with another. Secretary available. Box 61, c/o Secretary, R.I.B.A.

Owing to expansion, architects offer fully furnished suite of office accommodation in Sackville Street, London, W.1., on sharing basis with another professional firm. £180 p.a. inclusive. Box 65, c/o Secretary, R.I.B.A.

The Royal Institute of British Architects, as a body, is not responsible for statements made or opinions expressed in the JOURNAL.



PENSIONS

Staff pension arrangements may be made with Inland Revenue approval for small as well as large staffs, including cases where a single employee only is affected. The requirements of professional firms vary in almost every case, but we shall be glad to put before you suggestions to meet your problem with details of the outlay involved and the effect on your Tax liability.

For the 'self-employed' professional man the Income Tax concessions of the Finance Act, 1956, are important where a Personal Pension is planned. The actual advantages obtainable in this way, taking into account the inquirer's tax position, should be compared with those secured by more flexible arrangements before a final choice is made.

In view of the association of this Agency with the leading Life Offices in the Pensions field, we can place before you the recommendations of specialists both for Staff and Individual Pensions, at the same time quoting the outlay involved. The Life Office concerned will undertake the negotiations to obtain Inland Revenue approval of any arrangements concluded. Please address inquiries to:

The Manager,
A.B.S. Insurance Agency, Ltd.,
78 Wimpole Street,
London, W.1.
(Telephone: WELbeck 1526)

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